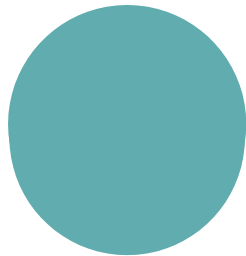
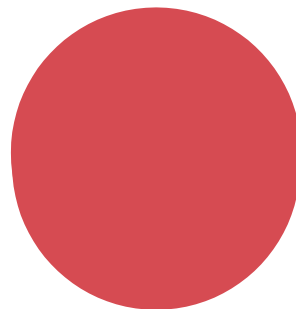




Energistyrelsen



Information Memorandum



**1500 MHz, 2100 MHz, 2300 MHz,
3.5 GHz and 26 GHz Auction**

2021

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- Annex B: Decision by the Danish Energy Agency of dd Mm 2020 on the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz Auction
- Annex C: Draft Licence (1500 MHz Frequency Band)
- Annex D: Draft Licence (2100 MHz Frequency Band)
- Annex E: Draft Licence (2300 MHz Frequency Band)
- Annex F: Draft Licence (3.5 GHz Frequency Band)
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- Annex H: Application Form
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- Annex O: Border coordination agreements between Denmark and Sweden
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- Annex Q: 1500 MHz: Commission Implementing Decision (EU) 2018/661
- Annex R: 2100 MHz: Commission Implementing Decision (EU) 2020/667
- Annex S: 2300 MHz: ECC Decision (14)02
- Annex T: 3.5 GHz: Commission Implementing Decision (EU) 2019/235
- Annex U: 26 GHz: Commission Implementing Decision (EU) 2019/784
- Annex V: 26 GHz: Commission Implementing Decision (EU) 2020/590
- Annex W: Germany 3400-3800 MHz synchronisation
- Annex X: Sweden draft for 3400-3800 MHz terms including synchronisation
- Annex Y: Existing frequency use in 3400-3800 MHz in Sweden
- Annex Z: Data for determination of the 3.5 GHz coverage requirement (ZIP file)
- Annex Æ: Definition of the protected geographic areas for 1492-1517 MHz (ZIP file)

IMPORTANT NOTICE

This Information Memorandum (The "Memorandum") has been prepared by the Danish Energy Agency in cooperation with DotEcon Ltd and Analysys Mason (the "Advisers") in connection with the auction of frequencies in the frequency bands 1427-1517 MHz (1500 MHz frequency band), 1920-1980 MHz paired with 2110-2170 MHz (2100 MHz), 2360-2400 MHz (2300 MHz frequency band), 3410-3800 MHz (3.5 GHz frequency band) and 24.65-27.5 GHz (26 GHz frequency band), due to take place in March 2021.

The Memorandum is for information purposes only. It is provided on the understanding that it will be used by the Recipient for the sole purpose of assisting the Recipient in considering possible participation in the Auction. The Memorandum is not intended to form any part of the basis of any investment decision or evaluation or any other decision to participate in the Auction, The Memorandum should not be considered as a recommendation by the Danish Energy Agency and its Advisers or the Danish Energy Agency's other advisers to any Recipient of this Notice to participate in any future auction.

The Decision by the Minister for Climate, Energy and Utilities provides the framework for the auction of the offered frequencies in the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz frequency bands, see Annex A, and the Danish Energy Agency's Decision includes rules concerning the preparation and implementation of the Auction, see Annex B. Furthermore, Recipients should consult relevant legislation, including the Frequency Act, cf. Consolidated Act No. 1100 of 10 August 2016, as changed by Act no. 1833 of 8 December 2020, see:

<https://www.retsinformation.dk/Forms/R0710.aspx?id=183640> and
<https://www.retsinformation.dk/eli/ta/2020/1833>

All information contained in this Memorandum is subject to updating, modification and amendment without notice. It is the responsibility of the Recipient to keep itself aware of such updating, modification and amendment.

The authoritative version of this Information Memorandum is in Danish. An English version is provided only for convenience when the final auction documents are published and is not intended to be the authoritative version.

1 Introduction and summary

On 1 February 2019 and 25 March 2020, the Minister for Climate, Energy and Utilities decided that an auction should be held of the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz frequency bands.

The 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz auction (hereinafter "the auction") is expected to commence in March 2021. The frequencies will be awarded nationwide on a service- and technology-neutral basis.

The Danish Energy Agency's framework for implementing the award and issuing the licences is given in the Danish Minister for Energy, Climate and Utilities' Decision of 22 December 2020 regarding the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz auction (hereinafter "the Minister's Decision"), cf. Annex A.

More detailed rules for the implementation of the Auction are given in the Danish Energy Agency's Decision of 22 December 2020 on the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz Auction (hereinafter "the Danish Energy Agency's Decision"), cf. Annex B.

This Memorandum describes the frequencies to be auctioned, the regulatory framework and the auction process.

1.1 Purpose of the 1500 MHz, 2100 MHz, 2300 MHz, 3.5 GHz and 26 GHz auction

The Auction will be held under the provisions of the Act on Radio Frequencies, cf. Consolidated Act No. 1100 of 10 August 2016, as changed by Act no. 1833 of 8 December 2020. The overall objective of the auction is to ensure efficient use of spectrum, promote effective competition and meet essential public interest considerations. It is an essential public interest consideration to ensure good mobile coverage - especially in sparsely populated areas and in areas where mobile coverage generally is not satisfactory. It is also an essential public interest consideration to expedite the rollout of 5G, seeing that 5G is expected to have great economic importance to society and enable the green solutions of the future.

In line with the objectives set down in the telecommunications policy agreement of 2018 (between S, RV, SF, EL, V, DF, K, LA, A [*political parties*]), ambitious coverage obligations have been set in the 2100 MHz and 3.5 GHz licences. The coverage obligations in the 2100 MHz licences aim to improve the availability of voice and broadband services in areas where the current availability is lowest. Coverage obligations in the 3.5 GHz licences aim to expedite the rollout of equipment that can be used for 5G across the country. Finally, part of the 3.5 GHz frequency band is subject to a leasing obligation intended to enable stakeholders other than providers, such as enterprises, public institutions and universities, to lease frequencies from the providers, to be used for establishing private 5G networks.

Coverage obligations for 2100 MHz licences are described in section 3.2 and coverage obligations for the 3.5 GHz frequency band are described in section 5.3.

1.2 The auction process

In order to ensure contiguity of assignments to each user in each band to the greatest possible extent, the spectrum is initially offered largely in the form of frequency-generic lots in a number of categories (some of which are bound to coverage obligations). These lots are assigned over the course of four phases, determining the bandwidth to be acquired by each bidder in each of the bands. Subsequently, the specific frequency ranges corresponding to frequency-generic lots assigned in the first four phases will be determined in a fifth phase.

The lots available for the first four phases, grouped into lot categories, and their respective reserve prices, are shown in the table below.

Table 1: Available lots and reserve prices

Category	Category	Number of lots available	Reserve price (DKK m)
1.5-B	Single lot corresponding to 25 MHz at the bottom of the 1500 MHz band	1	10
1.5-M	Frequency-generic lots each corresponding to 5 MHz at the centre (core) of the 1500 MHz band	8	10
1.5-T	Single lot corresponding to 25 MHz at the top of the 1500 MHz band	1	10
2.1-D	Frequency-generic lots of 2x10 MHz in the 2.1 GHz band, each bound to a corresponding coverage obligation, individually referred to as 2.1-D1, 2.1-D2 and 2.1-D3	3	0
2.1-U	Frequency-generic lots each corresponding to 2x5 MHz in the 2.1 GHz band (unencumbered)	6	25
2.3-U	Frequency-generic lots each corresponding to 20 MHz in the 2.3 GHz band (unencumbered)	2	50
3.5-D	Frequency-generic lots each corresponding to 80 MHz in the 3.5 GHz band and 400 MHz in the 26 GHz band, and each bound to the coverage obligation for the 3.5 GHz band	3	75
3.5-P	Single lot corresponding to the top 60 MHz in the 3.5 GHz band, bound to the leasing obligation for private networks for this band	1	25
3.5-U	Frequency-generic lots each corresponding to 10 MHz in the 3.5 GHz band (unencumbered)	8 – 24*	25
26-U	Frequency-generic lots each corresponding to 200 MHz/250 MHz in the 26 GHz band (unencumbered)	8 – 14*	5

* Depending on unsold 3.5 D-lots.

The award process consists of the following stages:

- The **Application Stage** in which Applicants submit applications and deposits to participate in the award process.
- The **Qualification Stage** in which the Danish Energy Agency determines which Applicants are qualified to participate in the award process; these qualified Applicants will then become Bidders.

- The **Auction**, which includes:
 - the **coverage lots assignment phase** in which 2.1-D and 3.5-D lots are assigned through a sealed bid process where each bidder can acquire at most one lot in each of these two categories;
 - the **2.1 GHz coverage obligation assignment phase** in which winners of 2.1-D lots are assigned one of 2.1-D1, 2.1-D2 or 2.1-D3;
 - the **main spectrum assignment phase** in which all remaining lots except 26-U are assigned;
 - the **26 GHz assignment phase** in which 26-U lots are assigned; and
 - the **specific frequencies assignment phase** in which specific frequencies are assigned to each winner of frequency-generic lots.
- The **Grant Stage** in which winning Bidders make payments for their Licences and the Danish Energy Agency issues the corresponding Licences.

1.3 Spectrum caps

Bidders are subject to the following spectrum caps:

- each bidder can acquire at most four 1.5-M lots;
- each bidder can acquire at most four lots across categories 2.1-D and 2.1-U;
- each bidder can acquire at most 160 MHz in the 3.5 GHz band; and
- each bidder can acquire at most 1650 MHz in the 26 GHz band.

1.4 Structure of the Memorandum

The remainder of the Memorandum is structured as follows:

- Section 2 contains a specific description of licence terms in the 1500 MHz frequency band, including the frequency blocks available, usage requirements, duration of licences and requirements regarding the territorial extent of the licences.
- Section 3 contains a specific description of licence terms in the 2100 MHz frequency band, including the frequency blocks available, usage requirements, coverage obligations, duration of licences and requirements regarding the territorial extent of the licences.
- Section 4 contains a specific description of licence terms in the 2300 MHz frequency band, including the frequency blocks available, usage requirements, duration of licences and requirements regarding the territorial extent of the licences.
- Section 5 contains a specific description of licence terms in the 3.5 GHz frequency band, including the frequency blocks available, coverage obligations, obligation to lease frequencies for private networks, duration of licences and requirements regarding the territorial extent of the licences.
- Section 6 contains a specific description of licence terms in the 26 GHz frequency band, including the frequency blocks available, usage requirements,

duration of licences and requirements regarding the territorial extent of the licences.

- Section 7 describes revocation of licences and amendment of licence terms.
- Section 8 describes the spectrum fee for all frequency bands.
- Section 9 describes the regulatory framework governing the auction process, the provisions for site sharing and network sharing; the provisions for licence trading and change of use and VAT treatment of licences.
- Section 10 contains an overview of the auction process, including the time schedule; rules on ownership structure of bidders, and bidder behaviour during the auction process; and circumstances under which bidders may be subject to sanctions.
- Section 11 describes the Application and Qualification Stages, including information on deposits and details of the Electronic Auction System (EAS) that will be used for the auction.
- Section 12 provides the rules for the auction.
- Section 13 explains the procedure for the granting of licences, including information on the announcement of the auction result and payment of the licence price.
- Section 14 contains information about communication between the Danish Energy Agency and bidders before and during the auction, and procedures for exceptional circumstances.

2 Terms for licences in the 1500 MHz frequency band

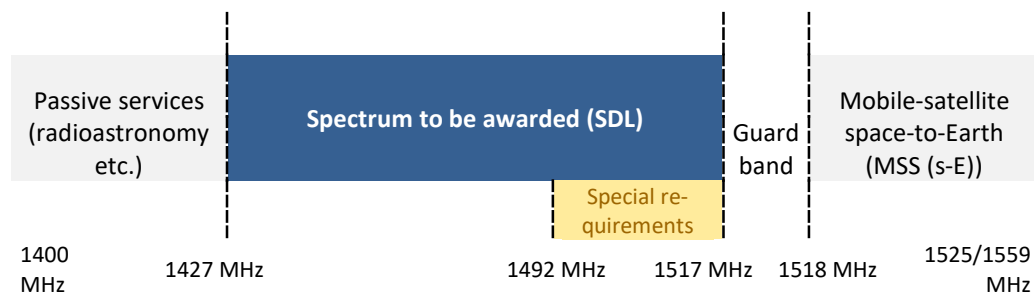
Section 2 describes terms for licences in the 1500 MHz frequency band, including the frequency blocks available, usage requirements, duration of licences and requirements regarding the territorial extent of the licences.

2.1 Spectrum available

Frequencies in the 1500 MHz band to be awarded in the auction comprises 90 MHz unpaired frequencies (1427-1517 MHz) as supplementary downlink (SDL).

Licensees must accept the present and future use of frequencies in adjacent frequency bands. This involves a coordination obligation. Uses in Denmark of the bands adjacent to the 1500 MHz band are illustrated in Figure 1 below.

Figure 1: Spectrum to be awarded in the 1500 MHz band and the use in adjacent bands.



The frequency range 1400-1427 MHz is used for passive services (including radioastronomy and Earth exploration satellites). Passive services depend on being able to measure very faint natural radio signals. As a result, there are particularly restrictive requirements for the use of frequencies in the 1500 MHz band in order to protect passive services (see section 2.3.1).

The frequency range above 1518 MHz is used for mobile satellite services (in the space-to-Earth direction), including Inmarsat's services for the aeronautical and maritime area, i.e. on board oceancrossing airplanes and oceangoing ships etc.

2.2 Usage requirements

The licences are subject to usage requirements, cf. the draft licence in Annex C.

The licensee shall install antennas as well transmitting and receiving equipment capable of using the frequencies specified in the licence not later than four years from the date of entry into force at a minimum of 100 mast positions. The usage requirement applies to licences comprising spectrum usage of 1452-1492 MHz. The equipment at the relevant mast positions shall be connected to the necessary telecommunications infrastructure in such a way as to enable the licensee, via the relevant mast positions, to offer at least one electronic communications service (at the licensee's own discretion) to end-users by using the frequencies specified in the licence.

2.2.1 Supervision

The licensee shall forward, not later than three months after the date of meeting the usage requirement, a survey to the Danish Energy Agency specifying the mast positions at which antennas as well as transmitting and receiving equipment have been installed such that at least one electronic communications service can be offered to end-users by using the frequencies specified in the licence, cf. the draft licence in Annex C. In the survey, the licensee shall indicate the geographical coordinates of the mast positions and the type of the installed transmitting and receiving equipment.

2.3 Usage restrictions

The precise technical conditions for restrictions in the use of the frequencies appear from the draft frequency licence, cf. Annex C. In the following subsections, the general features of the conditions have been described.

2.3.1 Unwanted emissions

Base station emissions shall be in accordance with the technical requirements appearing from the Annex to Commission Implementing Decision 2018/661/EU amending Implementing Decision 2015/750/EU on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union as regards its extension in the harmonised 1427-1452 MHz and 1492-1517 MHz frequency bands. It should be noted in particular that unwanted emissions in the frequency band 1400-1427 MHz are subject to an exceptionally strict requirement that may have an impact on the practical use of 1427-1452 MHz.

2.3.2 Coexistence with mobile satellite services

Furthermore, the use of 1492-1517 MHz shall comply with the PFD limit values shown in Table 2 at the border of Copenhagen Airport, Billund Airport and military airports at Aalborg, Skrydstrup and Karup. The values are specified on the basis of ECC Report 299. The specific areas around the airports where the PFD limit values shall be complied with is defined in Annex *Æ*, which contains an ESRI Shape-file defining the geographic areas. Annex *Æ* is identified by its digital fingerprint, as found by means of the cryptographic hash function SHA3-256¹.

"Annex *Æ* - Definiton of the protected geographic areas for 1492-1517 MHz.zip":
f384bc802196e85507baa8d878add371b44383226ee7199f0069b612f49424a1

Table 2: PFD limit values near airports

	Until 1 January 2025	After 1 January 2025
1492-1512 MHz	-53.5 dBW/m ²	-30.9 dBW/m ²
1512-1517 MHz	-63.4 dBW/m ²	-40.9 dBW/m ²

The PFD limits in Table 2, mean that 1492-1512 MHz cannot be used or can only be used with considerable difficulty near the five airports. In Table 2 (1492-1512 MHz)

¹ Secure Hash Algorithm, SHA3-256, specified and standardised in ISO/IEC 10118-3.

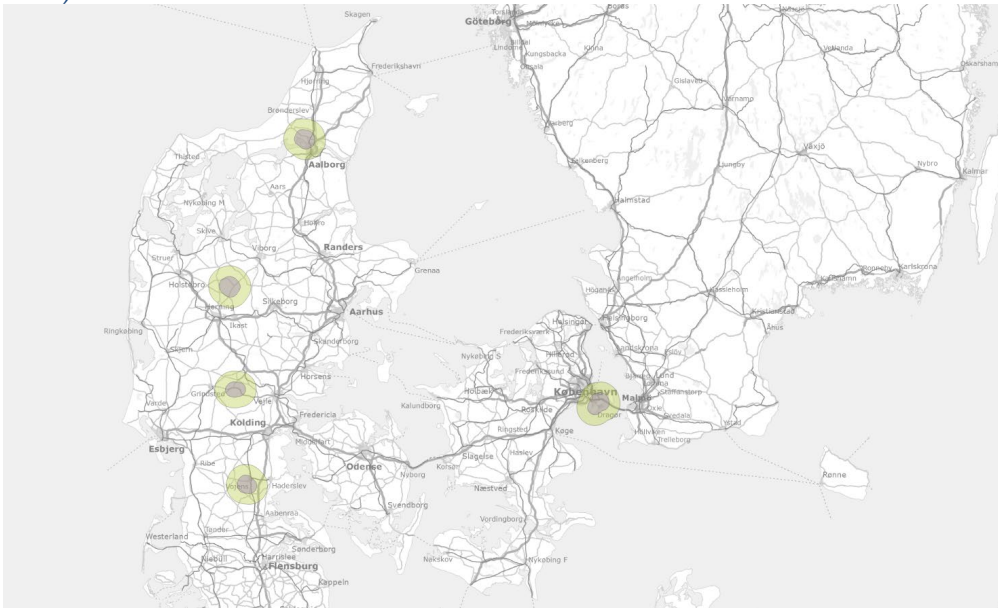
and Table 3 (1512-1517 MHz) the extent of the potentially affected areas has been illustrated. It is important to note that Table 2 and 3 are merely illustrations of the potentially affected areas based on simplified technical assumptions, and that bidders must evaluate the specific extent of the areas themselves on the basis of the PFD requirements.

Figure 2: Illustration of areas where 1492-1512 MHz cannot be used or can only be used with considerable difficulty until 1 January 2025 (pink areas) and after 1 January 2025 (dark red areas).



Figure 3: Illustration of areas where 1512-1517 MHz cannot be used or can only be used with considerable difficulty until 1 January 2025 (pale green areas) and after 1 January 2025 (grey).

areas).

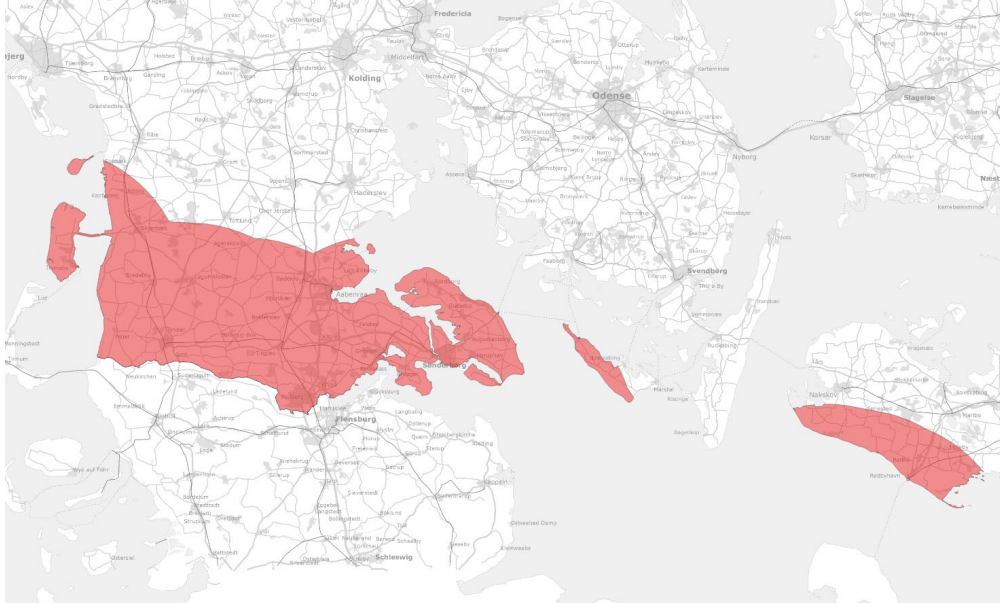


2.3.3 Restrictions due to international coordination

Denmark has a border coordination agreement with Germany regarding the 1500 MHz frequency band which must be respected. The coordination agreement with Germany is appended as Annex P. It should be noted in particular that 1427-1452 MHz and 1492-1517 MHz, cf. the coordination agreement, are not used for mobile networks in Germany, but for land mobile military services. As a result, a field strength limit has been set on the German border (land border or coast).

The field strength limit may mean that 1427-1452 MHz and 1492-1517 MHz cannot be used or can only be used with limitations in those areas of Denmark that are nearest to Germany. In Figure 4 the potential extent of the areas is illustrated. It should be noted that Figure 4 is merely an illustration of the potentially affected areas based on simplified technical assumptions, and that bidders must evaluate the specific extent of the areas themselves on the basis of the field strength requirements of the agreement.

Figure 4. Illustration of areas where 1427-1452 MHz and 1492-1517 MHz cannot be used or can only be used with limitations due to protection of military services in Germany.



A border coordination agreement with Sweden regarding the 1500 MHz frequency band has not yet been concluded. An agreement on this may be made at a future date. Until coordination agreements have been made with Sweden, the requirements of ECC Recommendation ECC/REC/(15)01, section A1.2 to annex 1, must be complied with.

New agreements may be made with other countries on a current basis. The agreements made from time to time between Denmark and other countries on the use of 1427-1517 MHz are a licence term and shall be complied with.

2.4 Geographical scope of licences

The frequencies are available nationally, and the licences will be issued as nationwide licences. See draft licence, cf. Annex C.

2.5 Duration of licences

The validity period of 1500 MHz licences will be from date of issue to 31 January 2042 without an option for extension.

3 Terms for licences in the 2100 MHz frequency band

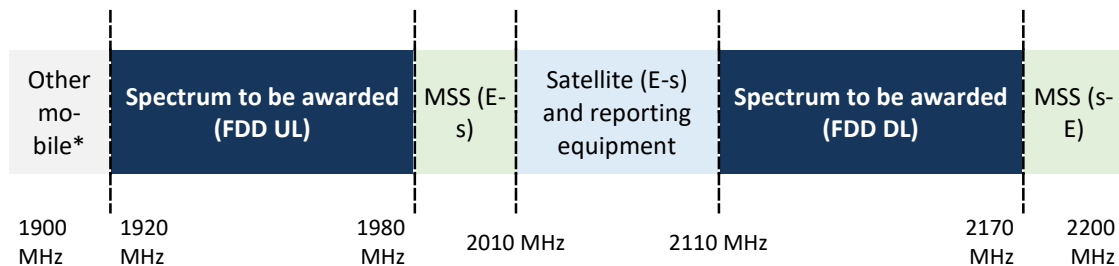
This section describes terms for licences in the 2100 MHz frequency band, including the frequency blocks available, usage requirements, coverage obligations, duration of licences and requirements regarding the territorial extent of the licences.

3.1 Spectrum available

The frequencies in the 2100 MHz band to be awarded in the auction comprises 2x60 MHz paired frequencies (1920-1980 MHz paired with 2110-2170 MHz).

Licensees must accept the present and future use of frequencies in adjacent frequency bands. This involves a coordination obligation. Uses in Denmark of the bands adjacent to the 2100 MHz band are illustrated in Figure 5 below.

Figure 5: Spectrum to be awarded in the 2100 MHz band and the use in adjacent bands



The frequency range 1900-1920 MHz is allocated for mobile services. The frequencies have previously been assigned for TDD use for mobile networks. The future use of the frequency band has not yet been decided, but a possible use is for radio networks for railway systems (FRMCS) as described in ECC Report 314², which may possibly be harmonised at EU level.

The frequency range 1980-2010 MHz (Earth-to-space) paired with 2170-2200 MHz (space-to-Earth) has been allocated for mobile satellite services etc., cf. Commission Decision of 13 May 2009 on the selection of operators of pan-European systems providing mobile satellite services (MSS), 2009/449/EC.

The frequency range 2010-2110 MHz is used wholly or partly for satellite (Earth-to-space) and reporting equipment (audio links, wireless video cameras etc.).

3.2 Coverage obligation

Licences may be subject to a coverage obligation to supply a mobile voice service and a mobile broadband service in one or more specified coverage area groups. The coverage areas are divided into three non-overlapping coverage area groups equally distributed throughout Denmark, cf. Annex 1 to the Minister's Decision in Annex A.

² <https://docdb.cept.org/download/64824326-aa9c/ECC%20Report%20314.pdf>

Licensees shall ensure provision, not later than 1 February 2024, of a mobile voice service and a mobile broadband service with an outdoor download bit rate of at least 30 Mbit/s and an upload bit rate of at least 3 Mbit/s. The coverage obligation applies in the coverage areas specified in the licence, and in each individual coverage area at least 90% of the area shall be covered.

Licensees are not required to fulfil the coverage obligation with the 2100 MHz frequencies included in their licence. Hence the coverage obligation can be fulfilled by using any frequencies that the licensees have at their disposal.

The coverage obligation may also be fulfilled via national roaming agreements. In this case the requirements to how the licensees must document compliance with the coverage obligation are the same as if the licensee undertakes its own development of the infrastructure required to fulfil the coverage obligation, see below on documentation of compliance with the coverage obligation.

In case the licensee can document fulfilment of that part of the coverage obligation which relates to a mobile broadband service, that part of the coverage obligation which relates to a mobile voice service is also regarded as having been fulfilled, provided that the licensee can document offering a service that enables voice via a broadband connection, for example Voice over LTE (VoLTE).

Documentation of compliance with the coverage obligation shall consist of coverage calculations/simulations supplemented with measurements confirming such calculations/simulations. When preparing calculations/simulations, the licensee can use the method that it finds most suitable, taking into account the technology used and the implementation of the network. Calculations may for example be made with the same model as that used for calculating the mobile coverage reported for the use of Tjekdit-net.dk to the Danish Energy Agency.

Either the licensee can provide documentation for the functioning of the network with chosen technical parameters, or the licensee can simulate the service level (grade-of-service) that it can deliver in the network with the chosen technical parameters and other operational parameters. Examples of these parameters are: transmitting power, propagation model, link budget, geographical distribution of users, number of simultaneous users, usage pattern etc.

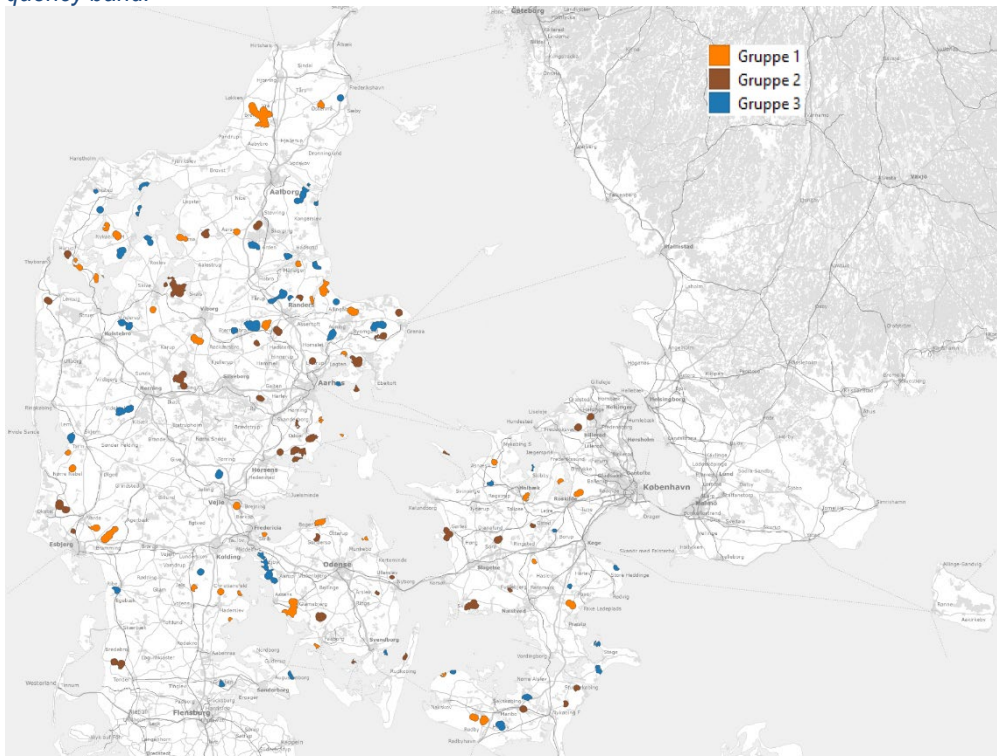
Calculations/simulations shall be verified by concrete measurements. The measurements shall be made in a representative range of radio environments (i.e. ground and building conditions), over distances and with equipment matching the conditions applicable in relation to the user. Information about the calculation model, measuring results and degree of correlation between the calculation model and the measurement results shall be included in the material to be sent by the licensee to the Danish Energy Agency in connection with the supervision. Thus the licensee shall make a sufficient number of measurements to verify the calculation model (i.e. there should be correlation between the results/prognoses of the calculation model and the actual conditions). The measurements may be made gradually as the infrastructure is rolled out.

The licensee shall provide documentation for the fulfilment of the coverage obligation not later than 1 May 2024.

The coverage areas that are subject to the coverage obligation are shown in the map below. The coverage obligation is divided into three groups, where:

- Group 1 comprises 41 coverage areas, corresponding to an overall area of 446 km².
- Group 2 comprises 40 coverage areas, corresponding to an overall area of 444 km².
- Group 3 comprises 41 coverage areas, corresponding to an overall area of 441 km².

Figure 6: Groups of coverage areas subject to the coverage obligation in the 2100 MHz frequency band.



The three groups of areas subject to the coverage obligation are contained in the three data files mentioned below, all of which are identified by their respective digital fingerprints, as found by means of the cryptographic hash function SHA3-256³.

“Annex L - 2100 MHz coverage group 1.r01.zip” SHA3-256:
cf97a8e082c9d4b6aa9d2157b8c089921d44bd1306622b0a8fe6353aee6653a1

“Annex L - 2100 MHz coverage group 2.r01.zip” SHA3-256:
5a2791d20c8cdde55048312c59073cdbe0efc6b90445ffd815b7497ac76fe2e8

³ Secure Hash Algorithm, SHA3-256, specified and standardised in ISO/IEC 10118-3.

“Annex L - 2100 MHz coverage group 3.r01.zip” SHA3-256:
98404f4477561a09da9b12304e1db555d4cd64778a32065e1c92de425b97c173

The data files contain a set of GIS files in ESRI Shape format, which describe the respective geographical areas.

The coverage obligation applies to winners of 2.1-D frequency blocks in the respective group of coverage areas associated with the 2.1-D frequency block in question.

3.3 Usage requirements

The licences are subject to usage requirements, cf. the draft licence in Annex D.

The licensee shall install antennas as well transmitting and receiving equipment capable of using the frequencies specified in the licence not later than 1 February 2024 at a minimum of 100 mast positions. The equipment at the relevant mast positions shall be connected to the necessary telecommunications infrastructure in such a way as to enable the licensee, via the relevant mast positions, to offer at least one electronic communications service (at the licensee's own discretion) to end-users by using the frequencies specified in the licence.

3.3.1 Supervision

The licensee shall forward, not later than 1 May 2024, a survey to the Danish Energy Agency specifying the mast positions at which antennas as well transmitting and receiving equipment have been installed such that at least one electronic communications service can be offered to end-users by using the frequencies specified in the licence, cf. the draft licence in Annex D. In the survey, the licensee shall indicate the geographical coordinates of the mast positions and the type of the installed transmitting and receiving equipment.

3.4 Usage restrictions

The precise technical conditions for restrictions in the use of the frequencies appear from the draft frequency licence, cf. Annex D. In the following subsections the general features of the conditions have been described.

3.4.1 Unwanted emissions

Base station emissions shall be in accordance with the technical requirements that appear from the Annex to Commission Implementing Decision 2020/667/EU amending Decision 2012/688/EU as regards an update of relevant technical conditions applicable to the frequency bands 1920-1980 MHz and 2110-2170 MHz. Note in particular that the spurious domain for base stations starts, respectively, below 2100 MHz and above 2180 MHz.

3.4.2 Restrictions due to international coordination

Denmark has border coordination agreements with Sweden and Germany regarding the 2100 MHz frequency band, which must be respected. The coordination agreements with Sweden and Germany are appended as Annexes O and P.

New agreements may be made with other countries on a current basis. The agreements made from time to time between Denmark and other countries on the use of 2100 MHz are a licence term and shall be complied with.

3.5 Geographical scope of licences

The frequencies are available nationally, and the licences will be issued as nationwide licences. See the draft licence in Annex D.

3.6 Duration of licences

The validity period of 2100 MHz licences will be 20 years from 1 February 2022 to 31 January 2042 without an option for extension.

4 Terms for licences in the 2300 MHz frequency band

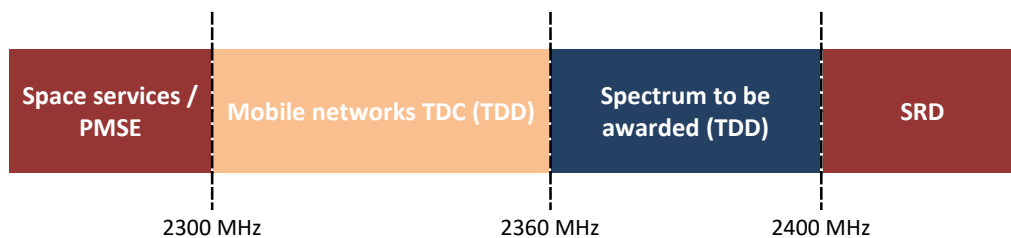
This section describes terms for licences in the 2300 MHz frequency band, including the frequency blocks available, usage requirements, coverage obligations, duration of licences and requirements regarding the territorial extent of the licences.

4.1 Spectrum available

Frequencies in the 2300 MHz band to be awarded in the auction comprises 40 MHz unpaired frequencies (2360-2400 MHz).

Licensees must accept the present and future use of frequencies in adjacent frequency bands. This involves a coordination obligation. Uses in Denmark of the bands adjacent to the 2300 MHz band are illustrated in Figure 7 below.

Figure 7: Spectrum to be awarded in the 2300 MHz band and the use in adjacent bands.



2300-2360 MHz was awarded to TDC for the use of mobile broadband at an auction in 2019. The frequencies are used for TDD mobile networks in accordance with ECC Decision (14)02⁴.

The frequency range 2400-2483.5 MHz is an ISM band (Industrial, Scientific and Medical). In addition, the frequency band is also used for many different SRD services, including Wi-Fi, alarms, and RFID. This is in accordance with Commission Implementing Decision (2006/771/EC) on harmonisation of the radio spectrum for use by short-range devices, amended most recently by 2013/752/EU.

4.2 Usage requirements

The licences are subject to usage requirements, cf. the draft licence in Annex E.

The licensee shall install antennas as well transmitting and receiving equipment capable of using the frequencies specified in the licence not later than two years from the date of entry into force at a minimum of 100 mast positions. The equipment at the relevant mast positions shall be connected to the necessary telecommunications infrastructure in such a way as to enable the licensee, via the relevant mast positions, to offer at least one electronic communications service (at the licensee's own discretion) to end-users by using the frequencies specified in the licence.

⁴ <https://docdb.cept.org/download/b02d6dab-2b58/ECCDEC1402.PDF>

4.2.1 Supervision

The licensee shall forward, not later than three months after the date of meeting the usage requirement, a survey to the Danish Energy Agency specifying the mast positions at which antennas as well transmitting and receiving equipment have been installed such that at least one electronic communications service can be offered to end-users by using the frequencies specified in the licence, cf. the draft licence in Annex E. In the survey, the licensee shall indicate the geographical coordinates of the mast positions and the type of the installed transmitting and receiving equipment.

4.3 Usage restrictions

The precise technical conditions for restrictions in the use of the frequencies appear from the draft frequency licence, cf. Annex E. In the following subsections the general features of the conditions have been described.

4.3.1 Unwanted emissions

For the frequency band 2360-2400 MHz, base station emissions shall be in accordance with the technical requirements that appear from Annex 2 to ECC Decision (14)02 of 27 June 2014 regarding "Harmonised technical and regulatory conditions for the use of the band 2300-2400 MHz for Mobile/Fixed Communications Networks (MFCN)".

ECC is in the process of revising ECC Decision (14)02 for the purpose of enabling the use of active antenna systems (AAS) in the 2300-2400 MHz frequency band. It is expected that the revision will be completed before the end of 2022. The Danish Energy Agency expects to amend the technical conditions for 2300-2400 MHz frequencies on the basis of the future and revised ECC Decision (14)02.

4.3.2 Coexistence with mobile networks in adjacent frequency bands

Seeing that a TDD frequency band is concerned, the licensee must coordinate frequency use with other licensees in the band 2300-2400 MHz, as frequencies have not been allocated for guard bands. Licensees have the option of making agreements with the other licensees in adjacent frequency blocks in 2300-2400 MHz about a common synchronisation scheme or other technical remedies (e.g. guard bands) to avoid interference between their mobile networks.

See details on this in draft technical conditions in Annex E.

4.3.3 Restrictions due to international coordination

Denmark has a border coordination agreement with Sweden regarding the 2300 MHz frequency band, which must be respected. The agreement is appended as Annex O.

The agreement with Sweden has less stringent values if the mobile networks are synchronised. However, the agreement offers the possibility of direct agreements with foreign operators about alternative values and solutions.

A border coordination agreement with Germany regarding the 2300 MHz frequency band has not yet been concluded. Until a coordination agreement has been made with Germany, the requirements of ECC/REC/(14)04, Annex 1, must be complied with. Germany does not use the 2300-2400 MHz frequency band for public mobile networks, and as a result, there may be restrictive coordination rules.

New agreements may be made with other countries on a current basis. Agreements made from time to time between Denmark and other countries on the use of 2300-2400 MHz are a licence term and must be complied with.

4.4 Geographical scope of licences

Frequency licences for the 2300 MHz band will be issued as nationwide licences. See the draft licence in Annex E.

4.5 Duration of licences

The validity period of 2300 MHz licences will be from date of issue to 31 December 2041 without an option for extension.

5 Terms for licences in the 3.5 GHz frequency band

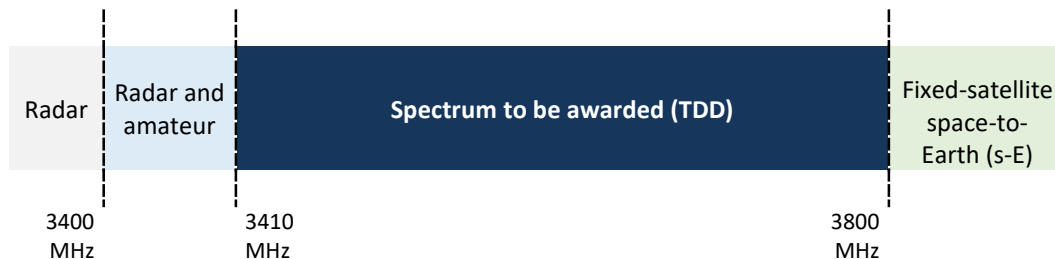
This section describes licence terms in the 3.5 GHz frequency band, including the frequency blocks available, coverage obligations, obligation to lease frequencies for private networks, duration of licences, and requirements regarding the territorial extent of the licences.

5.1 Spectrum available

Frequencies in the 3.5 GHz band to be awarded in the auction comprises 390 MHz unpaired frequencies (3410-3800 MHz).

Licensees must accept the present and future use of frequencies in adjacent frequency bands. This involves a coordination obligation. The uses in Denmark in frequency bands adjacent to the 3.5 GHz band are shown in Figure 8 below:

Figure 8: Spectrum to be awarded in the 3.5 GHz band and the use in adjacent bands.



The frequency range below 3400 MHz is used for radar purposes.

The frequency range 3400-3410 MHz is used for amateur and radar purposes etc.

5.2 Usage requirements

Licences in the 3.5 GHz frequency band that are not subject to coverage obligation or leasing obligation, will be subject to usage requirements.

The licensee shall install antennas as well transmitting and receiving equipment capable of using the frequencies specified in the licence not later than 31 December 2023 at a minimum of 100 mast positions. The equipment at the relevant mast positions shall be connected to the necessary telecommunications infrastructure in such a way as to enable the licensee, via the relevant mast positions, to offer at least one electronic communications service (at the licensee's own discretion) to end-users by using the frequencies specified in the licence.

5.2.1 Supervision

The licensee shall forward, not later than 1 April 2024, a survey to the Danish Energy Agency specifying the mast positions at which antennas as well transmitting and receiving equipment have been installed such that at least one electronic communications service can be offered to end-users by using the frequencies specified in the

licence. In the survey, the licensee shall indicate the geographical coordinates of the mast positions and the type of the installed transmitting and receiving equipment.

5.3 Coverage obligation

The licences may be subject to a coverage obligation for provision of a mobile service by using the 3.5 GHz frequency band for a specific share of the population. The coverage obligation does not require a specific technology to be used.

Licensees shall:

- ensure, not later than 31 December 2023, a population coverage of 60% when using the 3.5 GHz frequency band,
- ensure, not later than 31 December 2025, a population coverage of 75% when using the 3.5 GHz frequency band.

Licensees may document compliance with the coverage obligation by using the method described below.

5.3.1 Documentation of compliance with the coverage obligation

For each base station used for providing services in the 3.5 GHz frequency band it is determined in which of three geotypes (urban, suburban, rural) the base station is located.

Depending on the geotype, the base station is assigned a coverage radius of:

- Urban: 560 m
- Suburban: 1,300 m
- Rural: 2,340 m

On the basis of the overall coverage areas the population coverage is determined.

As a data basis for classification into geotypes the file Geotyper.zip, which is included in Annex Z, shall be used. Geotyper.zip contains ESRI Shape files that divide Denmark into the three respective geotypes. As a data basis for the population covered within the coverage area, the file Befolkning.zip, which is included in Annex Z, shall be used. For example, the number of housing units (implicitly assuming the same number of residents per housing unit), cf. BBR (the Danish Building and Housing Register). Befolkning.zip contains a semicolon-separated file, which contains a list of addresses (access address ID, street name, house number, postal code and geographical coordinate in ETRS89 UTM32) as well as the weight of the address for the calculation.

Annex Z is identified by its digital fingerprint, as found by means of the cryptographic hash function SHA3-256⁵.

"Annex Z - Data for determination of the 3.5 GHz coverage requirement.zip":
be8602e0aefb6b003c5f8942c27a2f60e4e4b0646716bd170fbf6d3f3baca906

⁵ Secure Hash Algorithm, SHA3-256, specified and standardised in ISO/IEC 10118-3.

5.3.2 Deadline for submitting documentation

The licensee shall provide documentation for the fulfilment of the coverage obligation not later than 1 April 2024 and 1 April 2026 respectively.

5.4 Obligation to lease frequencies for private networks

The top 60 MHz in the 3.5 GHz frequency band (3740-3800 MHz) is subject to a leasing obligation in respect of the enterprises and public institutions etc. that request the licensee of 3740-3800 MHz to lease the frequencies for the purpose of establishing a private network in the geographical area over which the relevant enterprise or public institution etc. has a right of disposal (e.g. via ordinary ownership, leasing or tenancy).

The leasing obligation applies in the first four years of the licence period. Thus an enterprise or public institution etc. shall have made an application to the licensee within this period and indicated its interest in leasing frequencies for establishing a private network for the use of its own enterprise or institution. The lessee of the frequencies must not use these for commercial provision of electronic communications networks or services.

The terms for the leasing obligation appear from the standard contract for leasing frequencies for establishing private networks as shown in Annex M, including the lessor's and lessee's obligations, technical conditions for the transmitting power and synchronisation of the private networks as well as price regulation of the obligation.

This obligation to lease frequencies is subject to the first come, first served principle. This means that enterprises and public institutions etc. that are geographically close neighbours must agree among themselves how their respective private networks will be able to coexist. If no agreement can be reached between enterprises and public institutions etc., the party that came last must apply to the Danish Energy Agency, which will then examine if there are other vacant frequencies suitable for the purpose.

5.4.1 Technical conditions for private networks

Technical conditions for the private networks appear from the standard contract in Annex M. The lessee shall at all times comply with the technical conditions specified in the licensee's (lessor's) licence.

The licensee (lessor) and the owner of the private network (lessee) may agree to depart from the maximum accumulated power density applicable at the geographical border of the lessee's area.

5.4.2 Price regulation

The licensee shall pay an annual spectrum fee for having access to the frequencies plus an administrative charge. In addition, the licensee shall pay a licence price for the frequencies. This price will be determined on the basis of the auction. A part of this

price will be the round price 10 MHz in the 3.5 GHz frequency band without coverage obligation and leasing obligation in the last round of the main spectrum assignment phase. This round price and administrative charge may be included in calculating the annual rental, and the terms for this appear from clause 6 in Annex M.

5.5 Usage restrictions

The precise technical conditions for restrictions in the use of the frequencies appear from the draft frequency licence, cf. Annex F. In the following subsections the general features of the conditions have been described.

5.5.1 Unwanted emissions

Base station emissions shall be in accordance with the technical requirements that appear from Annex to Commission Implementing Decision 2019/235/EU on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band. As for the out-of-band requirement below 3400 MHz, which appears from Table 6 of the Implementing Decision, the licensee shall comply with the technical requirements specified for situation A. The out-of-band requirement below 3400 MHz may mean that the use of 3410-3420 MHz, in particular, is rather difficult.

5.5.2 Coexistence with mobile networks in adjacent frequency bands

Seeing that a TDD frequency band is concerned, the technical conditions specify a synchronisation scheme. Licensees have the option of making agreements with the other licensees in adjacent frequency blocks in 3400-3800 MHz about a different synchronisation scheme or other technical remedies (e.g. guard bands) to avoid interference between their mobile networks.

The Danish Energy Agency will evaluate the relevant synchronisation scheme every fifth years throughout the licence period. If the evaluation gives occasion for changes in the synchronisation scheme, the Danish Energy Agency, subject to a notice of one year, will notify any changes in the terms of the licence. This means that if the synchronisation scheme is to be changed, then the synchronisation scheme of the private network will have to be changed correspondingly. Thus the licensee, without undue delay, shall notify lessees of frequencies for private networks of such change after the licensee has been advised of such change itself.

See details about the scope for coexistence in the draft technical conditions in Annex F.

5.5.3 Restrictions due to international coordination

Denmark has border coordination agreements with Sweden and Germany regarding the 3.5 GHz frequency band, which must be respected. The coordination agreements with Sweden and Germany are appended as Annexes O and P.

Both agreements have less stringent values if the mobile networks are synchronised. However, both agreements offer the possibility of direct agreements with foreign operators about alternative values and solutions. The German and Swedish requirements for synchronisation schemes are appended as Annexes W and X for information.

In the coordination agreement with Sweden there is a special requirement for protecting the Onsala peninsula. Basically, this is solely estimated to be of consequence to Danish frequency use of 3400-3800 MHz in the island of Læsø and at Frederikshavn. The bidder is requested to make its own assessment of the potential limitations consequential on Onsala.

The Swedish telecommunications authorities have advised that in the period until 31 March 2023 at the latest there may be FWA/BWA use of 3400-3800 MHz in Sweden. This may mean that the limit values of the bilateral agreement for non-synchronised use may have to be applied for the frequency bands affected. The existing Swedish use is described in Annex Y.

In the coordination agreement with Germany there is a special requirement for protection of existing FWA uses during a transitional period until 31 December 2022 at the latest.

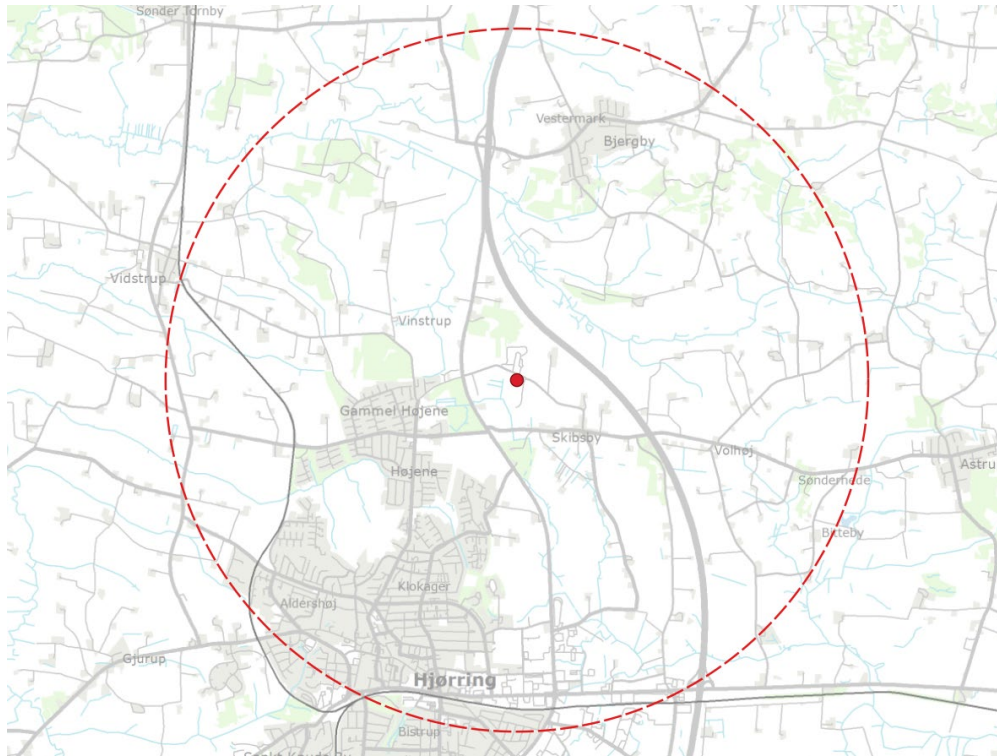
New agreements may be made with other countries on a current basis. Agreements made from time to time between Denmark and other countries on the use of 3400-3800 MHz are a licence term and must be complied with.

5.6 Geographical scope of licences

Frequency licences for the 3.5 GHz band will be issued as nationwide licences. See the draft licence in Annex F.

However, during the period until 1 January 2023 the frequencies may not be used by base stations within a radius of 4 km from the coordinate (10E00 41 / 57N29 17, WGS84 datum), as illustrated in Figure 9 below:

Figure 9: Illustration of area in which the 3.5 GHz frequency band cannot be used until 1 January 2023 (contains data from the Danish Agency for Data Supply and Efficiency, Screen Map, Danish Map Supply (Kortforsyningen.dk).



5.7 Duration of licences

The validity period of the 3.5 GHz licences will be from 1 June 2021 until 31 January 2042 without an option for extension.

6 Terms for licences in the 26 GHz frequency band

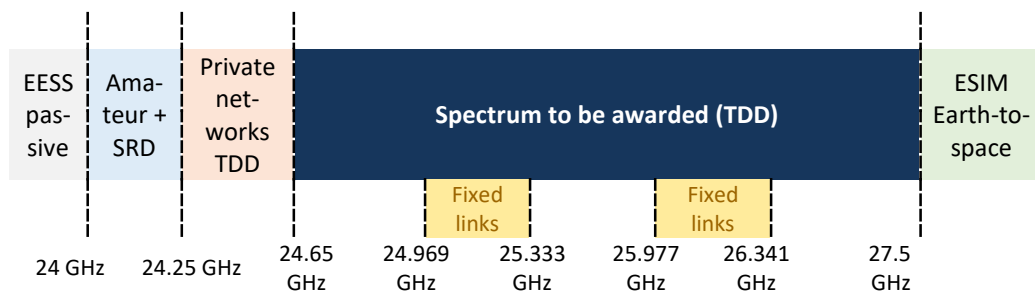
This section describes terms for licences in the 26 GHz frequency band, including the frequency blocks available, usage requirements, duration of licences and requirements regarding the territorial extent of the licences.

6.1 Spectrum available

Frequencies in the 26 GHz band to be awarded in the auction comprises 2850 MHz unpaired frequencies (24.65 – 27.5 GHz).

Licensees must accept the present and future use of frequencies in adjacent frequency bands. This involves a coordination obligation. The uses in Denmark in frequency bands adjacent to the 26 GHz band are shown in Figure 10 below:

Figure 10: Spectrum to be awarded in the 26 GHz band and the use in adjacent bands.



The frequency range 23.6-24 GHz is allocated for the passive Earth exploration-satellite service (EESS passive) and enjoys special protection from man-made interference.

The frequency range 24-24.25 GHz (or parts thereof) is allocated for the amateur service and amateur-satellite service plus SRD purposes, cf. ERC/REC 70-03 and the Commission's Decisions 2005/50/EC of 17 January 2005 (amended most recently by Commission Implementing Decision 2017/2077/EU) and 2006/771/EC of 9 November 2006.

The frequency range 24.25-24.65 GHz will be assigned for the use of private networks using TDD in accordance with the Annex to Commission Implementing Decision (EU) 2019/784 of 14 May 2019.

The frequency bands 24.969-25.333 GHz and 25.977-26.341 GHz are assigned to Telia (until the end of 2025) and Telenor (until the end of 2026) for the use of fixed radio links.

The frequency band 27.5-28.5 GHz is allocated for various purposes, including ESIM (Earth-to-space), which is used for example to provide airliners with internet access for passenger use.

6.2 Usage requirements

The licences are subject to usage requirements, cf. the draft licence in Annex G.

The licensee shall install antennas as well transmitting and receiving equipment capable of using the frequencies specified in the licence not later than four years from the date of entry into force at a minimum of 100 mast positions. The equipment at the relevant mast positions shall be connected to the necessary telecommunications infrastructure in such a way as to enable the licensee, via the relevant mast positions, to offer at least one electronic communications service (at the licensee's own discretion) to end-users by using the frequencies specified in the licence.

6.2.1 Supervision

The licensee shall forward, not later than three months after the date of meeting the usage requirement, a survey to the Danish Energy Agency specifying the mast positions at which antennas as well transmitting and receiving equipment have been installed such that at least one electronic communications service can be offered to end-users by using the frequencies specified in the licence, cf. the draft licence in Annex G. In the survey, the licensee shall indicate the geographical coordinates of the mast positions and the type of the installed transmitting and receiving equipment.

6.3 Usage restrictions

The precise technical conditions for restrictions in the use of the frequencies appear from the draft frequency licence, cf. Annex G. In the following subsections the general features of the conditions have been described.

6.3.1 Unwanted emissions

For the frequency band 24.25-27.5 GHz, emissions from base stations and terminals shall be in accordance with the technical requirements that appear from Annex to Commission Implementing Decision (EU) 2019/784 of 14 May 2019 on harmonisation of the 24.25-27.5 GHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services in the Union with the adjustments that appear from the Annex to Commission Implementing Decision (EU) 2020/590 of 24 April 2020 amending Decision (EU) 2019/784 as regards an update of relevant technical conditions applicable to the 24.25-27.5 GHz frequency band.

It should be noted that the requirements for unwanted emissions in the 23.6-24 GHz frequency band specified by the Commission Implementing Decision will be tightened for equipment put into service after 1 January 2024.

6.3.2 Coexistence with mobile networks in adjacent frequency bands

Seeing that a TDD frequency band is concerned, the technical conditions specify a synchronisation scheme. Licensees have the option of making agreements with the other licensees in adjacent frequency blocks in the 24.25-27.5 MHz band about a different synchronisation scheme or other technical remedies (e.g. guard bands) to avoid interference between their mobile networks.

The Danish Energy Agency will evaluate the relevant synchronisation scheme every fifth years throughout the licence period. If the evaluation gives occasion for changes in the synchronisation scheme, the Danish Energy Agency will notify any changes in the terms of the licence.

See details on this in the draft technical conditions in Annex G.

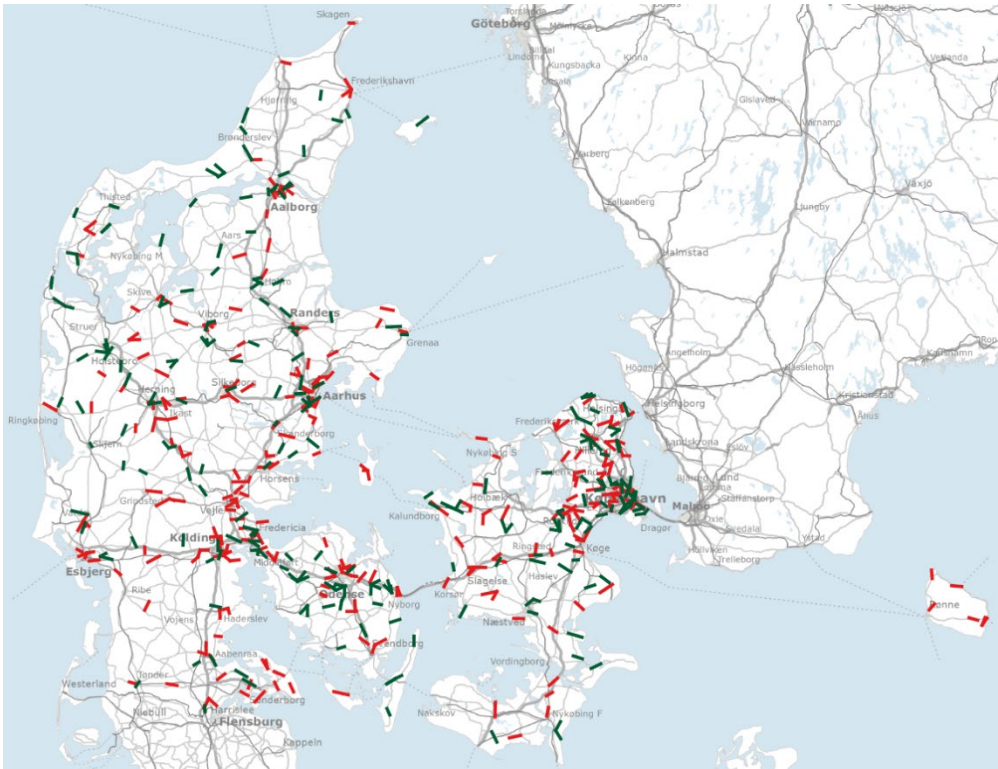
6.3.3 Coexistence with fixed radio links

As the frequency bands 24.969-25.333 GHz and 25.977-26.341 GHz have been assigned to Telia and Telenor for the use of fixed radio links, licensees will be required, during the period until 1 December 2021, to coordinate their possible use of the above-mentioned frequency bands with Telia and Telenor in order to avoid unacceptable interference of the use for fixed radio links.

During the period from 1 December 2021 until 31 December 2025 and 31 December 2026 respectively, Telia and Telenor will still be allowed to use their existing radio links provided that they do not cause unacceptable interference to the use by other licensees of the 26 GHz frequency band. If the use for fixed radio links during the period after 1 December 2021 causes interference to other use of the 26 GHz frequency band (including the 26 GHz frequencies on auction) the use for fixed radio links shall cease forthwith.

Telia's and Telenor's existing radio links in 26 GHz are shown in Annex N and illustrated in Figure 11.

Figure 11. Illustration of Telia's (red) and Telenor's (green) existing radio links in the 26 GHz frequency band.



In order to avoid suddenly arising unacceptable interference during the period until 1 December 2021, licensees are requested, particularly those granted a licence in the bands 24.969-25.333 GHz and 25.977-26.341 GHz, to notify Telia and Telenor on the expected use as early as possible (preferably at least 20 weeks and maximum 40 weeks in advance), if such frequency use is estimated to be able to cause interference to an existing fixed radio link in the bands concerned. Similarly, licensees are requested, during the period after 1 December 2021, to notify Telia and Telenor if the licensees estimate that the use for fixed radio links may cause interference to the planned use for mobile services.

Telia and Telenor will be able, within five working days, to indicate if there may be a risk of interference in a given area if the holder of an auction licence wants assistance to clarify this.

6.3.4 Coexistence with earth stations (EESS and FSS)

According to Commission Implementing Decision 2019/784/EU of 14 May 2019, it will still be possible to establish earth stations for Earth exploration-satellite services (EESS) (space-to-Earth) and/or space research services (SRS) (space-to-Earth) in the 25.5-27.0 GHz frequency band and earth stations for fixed satellite services (FSS) (Earth-to-space) in the 24.65-25.25 GHz frequency band. EESS/SRS earth stations will be protected in accordance with ECC Recommendation (19)/01 or similar rules.

It is a condition that the new earth stations and their location do not result in disproportionate limitations in the use of the 26 GHz frequency band for mobile purposes. As a consequence, the Danish Energy Agency will exclusively issue frequency licences for such earth stations if they are located at least 8 km from the nearest town with more than 1000 inhabitants, and if they do not cause limitations to existing mobile services rolled out in the 26 GHz frequency band, or planned to be rolled out in the band.

6.3.5 Restrictions due to international coordination

No border coordination agreements have been made for the 26 GHz frequency band.

New agreements may be made with other countries on a current basis. Agreements made from time to time between Denmark and other countries on the use of the 26 GHz frequency band are a licence term and must be complied with.

6.4 Geographical scope of licences

Frequency licences for the 26 GHz band will be issued as nationwide licences. See the draft licence in Annex G.

6.5 Duration of licences

The validity period of 26 GHz licences will be from date of issue to 31 January 2042 without an option for extension.

7 Revocation of licences and amendment of licence terms

This section describes revocation of licences and amendment of licence terms.

7.1 Revocation of licences

The Danish Energy Agency may revoke a licence after it has been issued if the Agency finds that the licensee, the licensee's Connected Persons or Insiders have violated the provisions described in clause 81 of the Danish Energy Agency's Decision relating to joint control of a bidder by two or more Mobile Operators; bidder relationships and behaviour during the auction; payment of the licence price and the auction costs and failure to provide required information, or provision of incorrect or imprecise information, cf. clauses 88-90.

If a licence is revoked by the Danish Energy Agency, the licensee shall pay on demand an amount equivalent to 30% of the licence price, or if a smaller amount of the licence price is outstanding at the time of revocation, then such smaller amount (see clause 91 of the Danish Energy Agency's Decision).

If a licence is revoked, the licensee shall not be entitled to receive reimbursement of any amounts already paid in connection with the auction as described in clauses 92-93 of the Danish Energy Agency's Decision.

In addition to the above-mentioned rules on revocation as specified in the Danish Energy Agency's Decision, the Frequency Act contains rules on revocation that will also be applicable to licences issued after holding the present auction.

This means that the Danish Energy Agency, subject to one year's notice, may revoke a licence if this is necessary in order to ensure fulfilment of commitments following from international frequency cooperation or to meet essential public interest considerations, cf. section 24 of the Frequency Act.

The Danish Energy Agency shall revoke a licence if the licensee fails to pay spectrum fees due, cf. section 25 of the Frequency Act. The Danish Energy Agency may revoke a licence if the licensee grossly violates the Frequency Act, rules laid down in pursuance of the Act, or terms in the licence, cf. section 26 of the Frequency Act.

7.2 Amendment of Licence

It follows from section 23 of the Frequency Act that the Danish Energy Agency may amend the conditions of frequency licences in order to ensure fulfilment of commitments following from international frequency cooperation or to meet essential public interest considerations. This will be done at one year's notice, unless it is necessary to protect human life or health.

Conditions of licences may also be amended on account of harmful interference which is not attributable to infringements, but where it is necessary to amend the conditions

in order to prevent further interference in accordance with section 23 of the Frequency Act.

Under the Frequency Act, it is also possible for the Danish Energy Agency, subject to application, to relax conditions that have been stipulated in order to avoid harmful interference if, in the Agency's opinion, it is no longer necessary to maintain such terms.

Modification of coverage obligation for 2100 MHz

A licensee may apply for a relaxation of the coverage obligations in quite exceptional cases as described in clause 4 of the Minister's Decision and Annex 2 to the Decision. This possibility of relaxation only applies in situations where the licensee is able to duly substantiate that the licensee cannot ensure supply of a mobile broadband service or mobile voice service in accordance with the coverage obligation at specific addresses or areas, cf. clause 3 of the Minister's Decision, due to conditions over which the licensee has no control, including environmental, preservation-related or quite exceptional radio planning conditions. This means that there is a narrow possibility of relaxing the coverage obligations, and the Danish Energy Agency, on the basis of an application, will make a specific assessment in each individual case.

It must be conditions which the licensee could not have taken into account at the time of bidding for the spectrum and the coverage obligation in the 2100 MHz frequency band. Thus, it must involve extraordinary further costs to fulfil the coverage obligation, which the licensee could not have foreseen at the time of applying for participation in the auction.

7.3 Relaxation of the coverage obligation as a result of new auctions

If the Danish Energy Agency, in connection with the assignment of frequency bands other than the 2100 MHz- and 3.5 GHz frequency bands, issues licences with coverage obligations, the Agency may relax terms on coverage in the 2100 MHz and 3.5 GHz licences as described in clause 5 of the Minister's Decision. This may be relevant, for example, where coverage areas coincide wholly or partly with other licences, or where other licences set further requirements for provision of broadband speeds or further requirements for population coverage etc.

8 Annual spectrum fees

This section describes the spectrum fee for all the frequency bands. Licensees will be required to pay annual fees to the Danish Energy Agency for the use of frequencies, as outlined in the frequency licences (Annexes C, D, E, F and G). This is in addition to the annual Deferred Payment instalments (if the licensee has not chosen to pay the licence price in full) that form part of the licence price. The spectrum fee is set annually in the Finance Act. The fee will be calculated in accordance with a fee structure that consists of a fixed component and a variable component which together form the total annual fee. The spectrum fee does not include VAT.

As an example, in 2020 the fixed component is DKK 600 per licence.

1500 MHz licences

The variable component of the fee is DKK 56,405 per MHz in 2020 for the licences in the 1500 MHz frequency band. Thus, the total annual spectrum fee in 2020 for a licence consisting of 10 MHz is expected to be DKK 564,050 and for a 5 MHz licence it is expected to be DKK 282,025.

2100 MHz licences

The variable component of the fee is DKK 56,405 per MHz in 2020 for the licences in the 2100 MHz frequency band. Thus, the total annual spectrum fee in 2020 for a licence consisting of 2x10 MHz is expected to be DKK 1,128,100 and for a 2x5 MHz licence it is expected to be DKK 564,050.

2300 MHz licences

The variable component of the fee is DKK 56,405 per MHz in 2020 for the licences in the 2300 MHz frequency band. Thus, the total annual spectrum fee in 2020 for a licence consisting of 20 MHz is expected to be DKK 1,128,100 and for a 40 MHz licence it is expected to be DKK 2,256,200.

3.5 GHz licences

The variable component of the fee is DKK 5,640 per MHz in 2020 for the licences in the 3.5 GHz frequency band. Thus, the total annual spectrum fee in 2020 for a licence consisting of 10 MHz is expected to be DKK 56,400 and for an 80 MHz licence it is expected to be DKK 451,200.

26 GHz licences

The variable component of the fee is DKK 564 per MHz in 2020 for the licences in the 26 GHz frequency band. Thus, the total annual spectrum fee in 2020 for a licence consisting of 400 MHz is expected to be DKK 225,600 and for a 1650 MHz licence it is expected to be DKK 930,600.

The spectrum fees are also published on the Danish Energy Agency's website: www.ens.dk.

9 Regulation

Section 9 describes the regulatory framework governing the auction process, the provisions for site sharing and network sharing; the provisions for licence trading and change of use and VAT treatment of licences.

9.1 Regulatory framework

This section reviews key regulatory conditions for the auction. Regulatory conditions other than those mentioned here may be relevant. Bidders are therefore recommended to consult the relevant legislation in the area. Reference is also made to the Danish Energy Agency's website: www.ens.dk.

9.1.1 Frequency Act

The Frequency Act⁶ came into force on 1 January 2010 and was amended most recently in [2020]. In 2016, authority was provided for the Danish Energy Agency to lay down terms on usage obligations in licences issued by auction or tender.

According to section 9(3) and section 10(1) of the Frequency Act, rules and conditions for the Auction are laid down in the Minister's Decision, cf. Annex A, and the Danish Energy Agency's Decision, cf. Annex B, respectively. The above-mentioned rules of the Frequency Act apply when licences are issued and essential public interest considerations have to be met.

The Minister's Decision determines the overall framework for the auction, including the type and number of licences to be included in the auction, minimum requirements (e.g. coverage obligations) to be met and reserve prices in the auction.

Based on the Minister's Decision, the Danish Energy Agency further decides on the implementation of the auction and the terms of licences that will be issued in connection with the auction. For instance, the Danish Energy Agency's Decision will determine the auction format and rules, conditions for participation in the auction and deposit requirements, cf. section 10(2) of the Frequency Act.

9.1.2 Regulation of the Danish telecommunications market

The Danish telecommunications market is regulated by the Danish Energy Agency and the Danish Business Authority. All electronic communications services, including mobile voice telephony and mobile broadband services, as well as the infrastructure related to these services, have been liberalised.

No licence is required to provide electronic communications networks or services in Denmark. However, all providers must fulfil the obligations in the Executive Order on the rights of end users on the telecommunications market⁷.

⁶ Act on Radio Frequencies, cf. Consolidated Act No. 1100 of 10 August 2016, as changed by Act no. 1833 of 8 December 2020.

⁷ Executive Order no. 1887 of 8 December 2022 on the rights of end users on the telecommunications market.

A licence may be required for use of scarce resources such as radio spectrum.

9.1.3 Telecommunications providers' assistance to the police

All providers of electronic communications network and services are required to ensure, without expense to the State, that their technical equipment and systems are arranged in such a manner, cf. section 10(1) of the Telecommunications Act⁸, so that the police may access telecommunications information and to intervene in the secrecy of communications. Providers of electronic communications networks or services are also required to register their undertaking with the Telecommunications Centre of the Danish National Police. This obligation appears from section 12(1) of the Telecommunications Act.

For the purpose of investigation and prosecution of criminal offences, all providers are with the exception of those mentioned in section 3 of the Executive Order on Logging⁹, also required to register and store telecommunications traffic data generated or processed in their networks, cf. section 1 of the Executive Order on Logging. The Executive Order on Logging, which falls under the Ministry of Justice, contains rules prescribing which information shall be stored.

9.1.4 Network and information security

The principal task of the Centre for Cyber Security is to support a high level of information security in the information and communication technology infrastructure on which activities vital to society depend. The Centre for Cyber Security administers the rules of the Act on Network and Information Security¹⁰ and rules issued in pursuance thereof. These rules include requirements for information security for providers of publicly available networks and services; information and notification duties regarding network and information security; access by emergency management authorities to electronic communications in emergency situations etc. and security clearance of employees in the area of network and information security.

The Danish Energy Agency has been informed that certain new rules are currently in preparation, a fact to be noted by all providers of electronic communications networks and services. This relates to conditions such as implementation of the EU's 5G toolbox.

9.1.5 The Danish Competition Act

The Danish Competition Act¹¹ applies to restrictions of competition that affect the Danish market. The Danish competition authorities are required to apply EU competition

⁸ Act on Electronic Communications Networks and Services, cf. Consolidated Act No. 128 of 7 February 2014 as amended most recently by Act No. 1833 of 8 December 2020.

⁹ Executive Order No. 988 of 28 September 2006 on Registration and Storing of Information on Telecommunications Traffic by Providers of Electronic Communications Networks and Electronic Communications Services (Executive Order on Logging) as amended by Executive Order No. 660 of 19 June 2014.

¹⁰ Act No. 1567 of 15 December 2015.

¹¹ Competition Act, cf. Consolidated Act No. 31 of 16 January 2018

law, i.e. Articles 101-102 TEUF, if any such behaviour also appreciably affects interstate trade.

The application of sections 6 and 11 of the Competition Act, i.e. the Danish provisions concerning the prohibition of anti-competitive agreements and the abuse of a dominant position, and articles 101-102 TEUF, is mainly concurrent. It follows from the preparatory notes to the Danish Competition Act that the Act is to be interpreted in accordance with EU competition regulation and case law, unless otherwise specifically stated.

9.1.6 EU regulation

The European Parliament, the Council and the European Commission have adopted rules on electronic communications networks and services and the use of frequencies. This includes decisions on harmonised technical conditions for using the 1500 MHz, 2100 MHz, 3.5 GHz and 26 GHz frequency bands.¹²

The EU regulation also includes decisions making the spectrum on auction available, wholly or partly, for other services, including mobile communications on board aircraft (MCA¹³) and mobile communication on board vessels (MCV¹⁴).

Among other highly relevant EU legislation may be mentioned:

- The European Commission's Guidelines on market analysis and the assessment of significant market power under the EU regulatory framework for electronic communications networks and services (2018/C 159/01);
- Regulation (EU) No. 531/2012 of the European Parliament and of the Council of 13 June 2012 on roaming on public mobile communications networks within the Union;

¹² See also Commission Implementing Decision 2015/750/EU of 8 May 2015 on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union, as amended by Commission Implementing Decision 2018/661/EU of 26 April 2018 amending Implementing Decision 2015/750/EU on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union as regards its extension in the harmonised 1427-1452 MHz and 1492-1517 MHz frequency bands; Commission Implementing Decision 2012/688/EU on the harmonisation of the frequency bands 1920-1980 MHz and 2110-2170 MHz, as amended by Commission Implementing Decision of 6 May 2020 amending Decision 2012/688/EU as regards an update of relevant technical conditions applicable to the frequency bands 1920-1980 MHz and 2110-2170 MHz; Commission Decision 2008/411/EC on the harmonisation of the 3400-3800 MHz frequency band, as amended most recently by Commission Implementing Decision 2019/235/EU of 24 January 2019 on amending Decision 2008/411/EC as regards an update of relevant technical conditions applicable to the 3400-3800 MHz frequency band, and Commission Implementing Decision 2019/784/EU of 14 May 2019 on harmonisation of the 24.25-27.5 GHz frequency band for terrestrial systems capable of providing wireless broadband electronic communications services in the Union, as amended by Commission Implementing Decision 2020/590/EU of 24 April 2020 amending Decision 2019/784 as regards an update of relevant technical conditions applicable to the 24.25-27.5 GHz frequency band.

¹³ See also Commission Decision 2008/294/EC of 7 April 2008 on harmonised conditions of spectrum use for the operation of mobile communication services on aircraft (MCA services) in the Community, as amended most recently by Commission Implementing Decision (EU) 2016/2317 of 16 December 2016 amending Decision 2008/294/EC and Implementing Decision 2013/654/EU, in order to simplify the operation of mobile communications on board aircraft (MCA services) in the Union.

¹⁴ See Commission Decision 2010/166/EU of 19 March 2010 on harmonised conditions of use of radio spectrum for mobile communication services on board vessels (MCV services) in the European Union, as amended by Commission Implementing Decision 2017/191/EU of 1 February 2017 amending Decision 2010/166/EU, in order to introduce new technologies and frequency bands for mobile communication services on board vessels (MCV services) in the European Union.

- Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No. 531/2012 on roaming on public mobile communications networks within the Union;
- Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU;
- Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (the e-data Protection Directive);
- Directive 2018/1972/EU of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast).

9.1.7 Health and safety issues

There are a number of EU health and safety requirements to be met by all radio communications equipment, and these regulations also apply in Denmark. The requirements include certain limit values for radiation. The limit values are given in Council Recommendation 519 from 1999¹⁵.

It follows from Danish legislation on radio equipment that radio equipment must comply with the essential requirements of the Radio Equipment Directive to allow it to be used.¹⁶ Installations for base stations must fulfil the same essential requirements although it is not compulsory to issue a declaration of conformity or affix a CE-mark. Via these essential requirements the provider of a radio service is responsible for compliance with the regulations based on Council Recommendation 519/1999/EC, see above.

The Danish Energy Agency supervises compliance with the requirements for using radio equipment. Providers of radio services shall cooperate with the Danish Energy Agency on this supervision. In case a provider of radio services becomes aware of concrete cases of exceeding the limit values, this shall be reported directly to the Danish Energy Agency.

¹⁵ 1999/519/EC: Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).

¹⁶ Act No. 260 on Radio Equipment and Electromagnetic Matters of 16 March 2016. The Act entered into force on 21 March, 20 April and 13 June 2016 and contains provisions implementing parts of Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility; parts of Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC and parts of Commission Directive 2008/63/EC of 20 June 2008 on competition in the markets in telecommunications terminal equipment.

9.2 Site sharing and network sharing

9.2.1 Site sharing

Denmark has a regime on site sharing which implies that owners of masts for radio-communications purposes shall meet requests from other operators with a licence to use frequencies to share the mast in question, and also that owners of masts not used for radiocommunications, buildings and other high structures, shall meet requests from operators with a licence to use frequencies for access to set up antenna systems on the mast, building or structure in question. For issues relating to mast siting, the Danish Energy Agency acts under the Act on Establishment and Joint Utilisation of Masts for Radiocommunications Purposes etc.¹⁷ (the Masts Act). The purpose of the Masts Act is to ensure facilities for optimal wireless mobile and broadband coverage, at the same time limiting the number of masts.

An owner of a mast, building or other high structure who enters into an agreement for joint utilisation, or is ordered to allow this or give access to set up antenna systems, is entitled to payment for such site sharing. The payment obligation rests on the party who has made a request for joint utilisation or setting up antenna systems, or who is given access to joint utilisation or setting up antenna systems. There are industry agreements concerning payment and terms for joint utilisation. Further information can be found at: www.teleindustrien.dk.

Under section 16 of the Masts Act, holders of licences to use radio frequencies for public mobile communications networks with associated basic services, and enterprises which under the Act on Radio and Television Services¹⁸ have a licence for the operation of nationwide radio or TV services via the terrestrial transmission network, should submit quarterly information to the Danish Energy Agency about existing antenna positions and radio coverage plans for at least two years ahead.

In addition, in order to increase transparency on antenna siting, the Masts Act amendment of 2004 provided for a publicly available database of antenna sites. The database is available on www.mastedatabasen.dk. The database includes the location of existing antennas; plans for new antennas; and the type of service and technology for each individual antenna position.

When considering applications for permission to erect new masts for radiocommunications, local authorities may specify terms for the overall dimensioning of the mast, with a view to making subsequent shared use possible. This is conditional on information from the Danish Energy Agency as to whether other licence holders are planning to set up antennas in the same geographical area; such information may rely on the data on www.mastedatabasen.dk. The Danish Energy Agency may also provide an opinion to local authorities on radio engineering in connection with applications for erecting new masts for radiocommunications.

¹⁷ Act on Establishment and Joint Utilisation of Masts for Radiocommunications Purposes etc., cf. Consolidated Act no. 1039 of 11 October 2019, changed by Act no. 1833 of 8 December 2020.

¹⁸ Act on Radio and Television Services, cf. Consolidated Act No. 1350 of 4 September 2020.

Access to physical infrastructure for small-area wireless access points

From 21 December 2020, it will be possible for providers of electronic communications networks or services to get access to physical infrastructure and access to street furniture controlled by a public authority, and access to physical infrastructure controlled by parties other than public authorities, for the purpose of setting up small-area wireless access points. Such access only applies to small-area wireless access points that fall within the European Commission's implementing acts adopted in pursuance of article 57(2) of the Directive of the European Parliament and of the Council establishing the European Electronic Communications Code and rules that the Minister for Climate, Energy and Utilities is authorised to prescribe. These rules appear from the Masts Act.

Access to physical infrastructure and access to street furniture shall be given on reasonable, transparent and non-discriminatory terms and conditions, including price. A public authority or other parties may refuse a request for access if the physical infrastructure or the street furniture is not technically suitable to host small-area wireless access points or if the physical infrastructure or the street furniture is not necessary to connect such wireless access points to a backbone network.

Sharing of passive infrastructure

Since 1 July 2016, it has been possible for providers of electronic communications networks to get access to the existing passive physical infrastructure of other network operators, for example empty ducts, across utility sectors, including telecommunications, power, water and heating supply etc., for the purpose of establishing high-speed networks for electronic communication. For issues relating to sharing of passive physical infrastructure, the Danish Energy Agency administers the Act on Cable Laying Access, Establishment and Utilisation of Infrastructure for Telecommunications Purposes and Utilisation of Infrastructure Across Utility Sectors etc. (Cable Laying Act)¹⁹.

Access to a network operator's passive physical infrastructure is granted by request on reasonable terms, including in relation to prices. A network operator may refuse a request based on objective, transparent and proportionate criteria, for example the technical suitability of the infrastructure, available space in the infrastructure, including considerations such as future business plans, the risk of significant impact on other services placed in the same infrastructure etc.

For the purpose of assessing the suitability of the passive physical infrastructure, a network operator may request access to information and access to surveying another network operator's existing passive physical infrastructure. Access to information and surveying is given on proportionate, non-discriminatory and transparent terms, including in relation to prices. Access to information and surveying can be limited when necessary for reasons such as network security and integrity, national security, confidentiality, operational and business secrets etc.

¹⁹ Act on Cable Laying Access, Establishment and Utilisation of Infrastructure for Telecommunications Purposes and Utilisation of Infrastructure Across Utility Sectors etc., cf. Consolidated Act No. 845 of 21 August 2019.

9.2.2 Network sharing

Network sharing is not specifically regulated for licences to be issued on the basis of the results of this auction. Thus the licence conditions and the frequency legislation will not restrict agreements on network sharing, and therefore network sharing is not subject to the Danish Energy Agency's prior approval.

It should be noted, however, that this does not imply that the Danish Energy Agency has taken any position on possible competition law aspects of such network sharing agreements. This falls within the jurisdiction of the Competition Authorities.

9.3 Licence trading

Licences to use frequencies may be transferred or returned, wholly or partly (divided either in frequency portions or geographically). This follows from section 21 of the Frequency Act.

In this context, the Danish Energy Agency has established rules prescribing that a licensee's plans on transfer shall be notified to the Danish Energy Agency, and that this information be published by the Agency, cf. section 5 of Executive Order No. 1667 of 25 May 2020 on Licences to Use Radio Frequencies. A licensee shall notify the Danish Energy Agency immediately after having made an agreement on transfer. In addition, there are rules prescribing that transfer or return of parts of licences issued after an auction or a public tender process shall be subject to the Danish Energy Agency's prior approval. This follows from section 21(4) and section 58(5) of the Frequency Act, cf. Executive Order No. 1129 of 1 December 2009 on the Transfer and Return of Certain Licences to Use Radio Frequencies.

9.4 Treatment of Licence Price for VAT purposes

On 26 June 2007, the European Court of Justice delivered two judgments about payment of VAT on the award of Licences for the use of radio frequencies that are subject to a fee. The main conclusion of the judgments is that assignment by the Member States of radio frequencies such as those dealt with in these cases is not regarded as economic activities subject to VAT.

The judgments of the European Court of Justice are of significance to Denmark in that the Danish VAT legislation must be interpreted in accordance with the judgments. Thus Danish licensees, including the winners of this auction, cannot claim deduction for VAT in the licence price.

10 Overview of the auction process

Section 10 contains an overview of the auction process, including in indicative time schedule, rules on ownership structure of bidders, and rules on bidder behaviour during the auction process; and circumstances under which bidders may be subject to sanctions.

10.1 Stages of the auction process

The auction process consists of the following stages, see also section 1.2:

- the Application Stage;
- the Qualification Stage;
- the Auction (comprising five auction phases); and
- the Grant Stage.

10.1.1 The Application Stage

The Application Stage consists of the period during which interested parties can submit their applications and deposits (in the form of a demand guarantee) to participate in the auction.

As part of the application, each bidder must specify whether the bidder wants to participate in the first auction stage, where each bidder may win one 21-D frequency block and one 3.5-D frequency block. The indication of a wish to participate in the first auction stage means that the bidder shall submit a valid bid in the first auction stage corresponding to the bid indicated in the application (the coverage lots assignment phase), see section 10.1.3.

Details on the applications received will be announced in the Application Stage and at the end of the Qualification Stage.

10.1.2 The Qualification Stage

In the Qualification Stage the Danish Energy Agency will check the applications received and qualify the bidders who meet the requirements to participate in the auction. These requirements are set out in section 11. The Qualification Stage is expected to last two days. The list of Qualified Bidders will be announced at the end of the Qualification Stage.

10.1.3 Auktionen

The duration of the auction is unknown as it depends on the demand from bidders and the number of bidding rounds required to resolve any excess demand and assign the available lots. The auction process and the rules for the auction are described in detail in Section 12.

The auction itself comprises four phases and is conducted using an online Auction System (AS).

First auction phase: Coverage lots assignment phase

In this phase, the 2.1-D and 3.5-D lots are assigned using a non-combinatorial sealed bid process in which bidders can bid for at most one generic 2.1-D lot (without being able to differentiate between 2.1-D1, 2.1-D2 and 2.1-D3 at this stage) and at most one 3.5-D lot. For the avoidance of doubt bidders can bid for both a 2.1-D lot and a 3.5-D lot. Bids are made by specifying the maximum amount the bidder is prepared to pay for a lot of each type and must be at least the reserve price for the corresponding lot category.

Bids are non-combinatorial, i.e. bids for 2.1-D lots are independent of bids for 3.5-D lots. If a bidder bids both for a 2.1-D and a 3.5-D lot, this constitutes two separate bids, which are evaluated and can become winning bids independently.

The Agency will schedule a single bidding round in which bidders can make their bids for this phase. If more than three bids have been received in a category, these bids will be ranked in descending order (with ties being broken at random) in each category and the highest three bids will be selected as winning bids. If three or fewer bids have been placed in a category, all of these will become winning bids.

In each category, the amount of the highest bid in the category in question that has not been selected as a winning bid, or the reserve price if three or fewer bids are placed in that category, will be included in the total licence price each successful bidder will have to pay.

Second auction phase: 2.1 GHz coverage obligation assignment phase

This phase will assign one of 2.1-D1, 2.1-D2 or 2.1-D3 to each winner of a generic 2.1-D lot, using a combinatorial sealed bid process. Each winner of a 2.1-D lot can but does not need to place a specific 'additional bid' for each of 2.1-D1, 2.1-D2 and 2.1-D3. If a bidder does not place a bid on a particular 2.1-D lot, a default additional bid of DKK zero applies for any lots for which the bidder does not specify a bid.

The winning bids will be determined by selecting the combination of bids that generate the highest value subject to assigning each winner of a 2.1-D lot in the previous phase exactly one of the 2.1-D lots, with ties being broken at random.

Third auction phase: Main spectrum assignment phase

In this phase, the following lots are assigned:

- 1.5-B, 1.5-M and 1.5-T;
- 2.1-U and any 2.1-D lots that may have remained unassigned in the first phase;
- 2.3-U; and

- 3.5-U (which will include the 3.5 GHz spectrum from unassigned 3.5-D lots, if any).

This phase will use the CMRA²⁰ format that has been used for recent spectrum awards in Denmark. Bidding proceeds over one or more rounds where the Agency will set the round prices. Bidders may make one or more bids for combinations of lots ("packages"). A bidder may only win one of the packages for which it has bid, and the bidder is guaranteed to win all lots included in the package associated with its winning bid.

Fourth auction phase: 26 GHz assignment phase

In this phase, the remaining 2.6-U lots (which will include the 26 GHz spectrum from unassigned 3.5-D lots, if any) are assigned. This phase will also use the CMRA format.

Fifth auction phase: Specific frequencies assignment phase

The last phase will determine the actual frequencies that will be assigned to each winner of spectrum lots in the previous phases, using a combinatorial sealed bid process. This phase will be conducted over the AS with bidders being able to place bids for specific assignments of frequencies that they might obtain in each band simultaneously for all bands, though bids will be evaluated separately for each band. For each band, winning bids will be determined as the combination of bids with the highest total value that are mutually compatible, with ties being broken at random. The lowest amount, which will be included in the total licence price, corresponds to the bid bidders could have bid (individually and across all possible combinations) without affecting the outcome.

10.1.4 Grant Stage

In the Grant Stage, bidders who have been assigned frequencies in the auction will be granted the corresponding frequency Licences, subject to payment of the full Licence price or 10% of this and provision of a guarantee for the deferred payment.

10.2 Time schedule

There is no pre-determined timetable for the award process or the auction in particular. However, in order to assist potential bidders in their planning for the process, Table 3 below provides an indicative timeframe. The timetable, and any updates as required, will be published on the Danish Energy Agency's website: <https://ens.dk/ansvar-somraader/frekvenser/auktioner-og-udbud-frekvenser>.

The Danish Energy Agency reserves the right to alter any part of the auction process timetable, including the Application Date, at any time. In the event that a scheduled date is changed, the Danish Energy Agency will publish the new date on its website or otherwise advise bidders as soon as possible. The Danish Energy Agency can make any changes to the schedule for a specific event at least 24 hours in advance of the previously

²⁰ Combinatorial Multi-Round Ascending.

scheduled time, except in extraordinary circumstances where the Danish Energy Agency may give less than 24 hours' notice.

Table 3: Indicative timetable for the auction process

Event	Bidder action	Action by the Danish Energy Agency	Indicative timeline
Application Stage			
Submission of Applications.	Interested parties submit Applications, including guarantee for Deposit via the digital tendering system (Digitale Udbud).	The Danish Energy Agency sends a receipt via the digital tendering system.	29 Jan 2021
Notification of Bidders and announcement of bidder list.		The Danish Energy Agency announces the identity of Bidders and information on their ownership structure.	8 Feb 2021
Notification on relations.	Deadline for Bidders to notify the Danish Energy Agency of any relations via the digital tendering System.		10 Feb 2021
Resolution of relations.	Deadline for Bidders to resolve any relations.	Bidders that fail to resolve relations will be excluded.	25 Feb 2021
Qualification Stage			
Final day for withdrawals.	Last date by which a Bidder may withdraw from the process by notifying the Danish Energy Agency via the digital tendering system.		25 Feb 2021 13.00 hours
Announcement of Qualified Bidders.		The Danish Energy Agency announces list of Qualified Bidders in the digital tendering system and on the Agency's website.	26 Feb 2021
The Auction			
Access to the AS.		The Danish Energy Agency provides authentication credentials for accessing the AS and the user manual for the AS. The Danish Energy Agency expect to distribute these using a secure online file share facility.	1 Mar 2021
Online Bidder training for Bidders participating in the first two phases.	Only Qualified Bidders will be allowed to attend the seminar and participate in the mock auction.	The Danish Energy Agency and its Advisors will host an online seminar on using the AS and run a mock auction.	2-5 Mar 2021
First phase: Coverage lots assignment phase			
Bidding round for the first phase.	Bidders have opportunity of bidding on generic lots subject to coverage obligations.	The Danish Energy Agency sets parameters for the first auction phase round, collects bids and processes the results of the bidding round.	11 Mar 2021

Event	Bidder action	Action by the Danish Energy Agency	Indicative timeline
Notification of the result of the first phase in the AS.		The Danish Energy Agency notifies the result of the first auction phase to the bidders in the AS.	11 Mar 2021
Second phase: 2.1 GHz coverage obligation assignment phase			
Bidding round of the second phase.	Bidders who have won 2.1-D lots have an opportunity to bid for the specific part of the coverage obligation.	The Danish Energy Agency sets parameters for the bidding round, collects bids and processes the results of the bidding round. The bidding round will start at least one hour from the notification of the result of the first phase.	11 Mar 2021
Notification of the result of the second phase in the AS.		The Danish Energy Agency notifies the result of the first auction phase to the bidders in the AS.	11 Mar 2021
Third phase: main spectrum assignment			
Online Bidder training for Bidders participating in the third, fourth and fifth phase.	Only Qualified Bidders will be allowed to attend the seminar and participate in the mock auction.	The Danish Energy Agency and its Advisors will host an online seminar on using the AS and run a mock auction.	15-17 Mar 2021
First bidding round of the main spectrum assignment phase.	Bidders participate in the main spectrum assignment phase and submit bids using the AS.	The Danish Energy Agency sets parameters for the main spectrum assignment phase rounds, collects bids and processes the results of the bidding rounds.	22 Mar 2021
Notification of the result of the main phase in the AS.		The Danish Energy Agency notifies the result of the main spectrum assignment phase in the AS.	26 Mar 2021
Fourth phase: 26 GHz assignment phase			
First bidding round of the 26 GHz assignment phase.	Bidders participate in the 26 GHz assignment phase and submit bids using the AS.	The Danish Energy Agency sets parameters for the 26 GHz assignment phase rounds, collects bids and processes the results of the bidding rounds.	6 Apr 2021
Notification of the result of the 26 GHz assignment phase in the AS.		The Danish Energy Agency notifies the result of the 26 GHz assignment phase in the AS.	9 Apr 2021
Fifth phase: Specific frequencies assignment phase			
Bidding round for the fifth phase	Bidders who have been assigned spectrum lots may submit bids for their desired placement in the frequency bands using the AS (if required).	The Danish Energy Agency sets parameters for the fifth phase, collects bids and processes the results of the bidding round.	13 Apr 2021
Publication of Auction results.		The Danish Energy Agency publishes the result of the Auction in the AS and thereafter on the Danish Energy Agency's website.	13 Apr 2021
Grant Stage			

<i>Event</i>	<i>Bidder action</i>	<i>Action by the Danish Energy Agency</i>	<i>Indicative timeline</i>
Payment of Licence price.	Bidders who have been assigned spectrum pay 10% of the Licence price and provide a demand guarantee for the Deferred Payment, or pay the Licence price in full.		27 Apr 2021
Issue of licences.		Licences issued to winning Bidders that fulfil payment terms.	30 Apr 2021

10.3 Ownership rules

In connection with this auction, bidders are subject to the ownership rules described below.²¹ Bidders are subject to ownership rules which require that the bidder and its connected persons are not connected or associated with any other bidder and its connected persons or more than one mobile operator.

Bidders should refer to the provisions of the Danish Energy Agency's Decision for the application of ownership rules in this auction. Illustrative diagrams and a step-by-step explanation of rules and the disclosure requirements as part of the application are set out in Annex K. A summary of the rules is provided below.

10.3.1 Definition of Connected Persons and Associated Bidders

Connected Persons

Connected persons in relation to a bidder are effectively those parties who:

- control the bidder;
- have a direct or indirect participation of 10% or more in the bidder and have an agreement, wholly or partly, to finance or otherwise to assist the bidder in connection with the auction or have confidential information concerning the bidder; or
- are controlled by the bidder or parties who fall into the previous two categories.

The full definition of a connected person is given in clause 100 of the Danish Energy Agency's Decision, cf. Annex B.

Associated Bidders

Where a bidder and its connected persons do not overlap with another bidder and its connected persons but there is nonetheless a degree of common ownership between the bidders meeting the conditions below, such bidders will be associated bidders.

Associated bidders shall mean bidders who have one of the following relationships to each other:

²¹ It should be noted that the ownership rules are the same as those applicable to the 700 MHz, 900 MHz and 2300 MHz auction, and the 1800 MHz-auction.

- one bidder holds a participation of 20% or more in the other bidder;
- a connected person in relation to one bidder holds a participation of 20% or more in the other bidder;
- a person who is not a connected person in relation to any of the bidders concerned holds a participation of 20% or more in both bidders; or
- one of the bidders or a connected person in relation to this bidder or a party who holds a participation of 20% or more in this bidder, and the other bidder or a connected person in relation to the other bidder or a party who holds a participation of 20% or more in the other bidder, each hold a participation of 20% or more in the same mobile operator or persons who control the mobile operator.

The definition of an associated bidder is given in clause 107 of the Danish Energy Agency's Decision, cf. Annex B.

10.3.2 Restrictions on relations between bidders

The following relations must not exist between bidders:

- one bidder is a connected person with one or more other bidders;
- two or more bidders are associated bidders.

The rules are set out in clause 12 of the Danish Energy Agency's Decision, cf. Annex B.

The Danish Energy Agency's scope for granting exemptions from the above-mentioned rules is described in further detail in section 10.3.4.

10.3.3 Resolution of bidder connections

It is possible at the application date that a bidder is unaware that another party with whom it has common connected persons or an association is applying.

If the Danish Energy Agency finds that the relation referred to in section 10.3.2 exists between bidders, the Danish Energy Agency shall notify this to the bidders affected, indicating a deadline for bidders to apply for exemption from the rules on relations between bidders; bring the relation to an end; or refrain from further participation in the auction.

If the bidders affected are not granted an exemption, do not bring the relation to an end or refrain from participation in the auction, the Danish Energy Agency will exclude the bidders affected from further participation in the auction. If the relation is brought to light later in the auction process, the Danish Energy Agency may also declare the result of the auction not binding, wholly or partly, for the Danish Energy Agency.

If the above-mentioned relations exist between two bidders, and it is not possible to bring the relation to an end within the deadline set by the Danish Energy Agency, and

the Agency does not grant an exemption, one of the bidders may withdraw from participation in the auction, so that it is not necessary for the Danish Energy Agency to exclude both bidders.

10.3.4 Exemption from ownership rules

The Danish Energy Agency may, at its sole discretion, grant exemption from the ownership rules described above, cf. clause 13 of the Danish Energy Agency's Decision, cf. Annex B. Furthermore, the Danish Energy Agency may attach terms to a decision about exemption from the ownership rules, cf. clause 14 of the Danish Energy Agency's decision.

In considering whether to grant an exemption, the Danish Energy Agency will put emphasis on ensuring that restrictions on participation in the auction should not go any further than necessary in order to ensure efficient use of spectrum, and at the same time the Agency must ensure that competition in utilising the spectrum is promoted in order to give users the greatest possible benefits.

In the case of a relation between two bidders, the Danish Energy Agency may, under clause 13, grant exemption from the rules if it is substantiated to the Agency:

- that the connection or the association is temporary;
- that the connection or the association has not been established for the purpose of the auction or the licences;
- that none of the bidders have determined, or may determine, decisions in respect of another bidder or its connected persons, so that the managements of the bidders have made and will make decisions in respect of participation and bidding in connection with the auction in relation to the application independently of each other;
- that none of the connected persons in relation to a bidder has determined or can determine the decisions of the managements for and on behalf of two or more bidders about participation and bidding in connection with the auction; and
- that no bidder or any of its connected persons have received or will receive confidential information concerning two or more bidders.

10.3.5 Changes to ownership structures

It appears from clause 25 of the Danish Energy Agency's Decision, cf. Annex B, that after the application date a bidder and its connected persons must refrain from actions or omissions that establish a relation to another bidder resulting in the bidders being included under clause 12 of the Danish Energy Agency's Decision. In the absence of an exemption, failure to comply with this rule could result in a substantial fine and exclusion from the auction (see section 10.4.5 below).

In any event, as described in section 11.1.7 below, the bidder must notify the Danish Energy Agency of any changes whatsoever in the conditions on which its application is based.

10.3.6 Mobile Operators

It follows from clause 9 of the Danish Energy Agency's Decision, cf. Annex B, that a bidder may not be under the joint control of two or more mobile operators.

Notwithstanding clause 9 a bidder may be under the joint control of two or more mobile operators if this is in accordance with the rules of the Competition Act as applicable at the time. The bidder in question is required itself to assess and vouch for compliance with these rules, cf. clause 10 of the Danish Energy Agency's Decision. This implies that the competition authorities need not assess this question prior to the auction. Instead the bidder is required itself to assess and vouch for compliance with the competition rules, possibly with external assistance.

Notwithstanding clause 9 a bidder may be under the joint control of two or more mobile operators if the bidder has previously obtained approval under the rules of the Competition Act. In that case the bidder must append documentation of such approval to its application, cf. clause 11 of the Danish Energy Agency's Decision. This means that if a bidder has previously obtained approval from the competition authorities regarding a specific case of cooperation or the like, this approval will still apply, and documentation of it, for example by way of a decision, must in that case be appended to the application for the auction.

The rules laid down in the Danish Energy Agency's Decision do not imply that the Agency has taken a position on what bidder constellations, including constellations other than the one mentioned about bidders under the joint control of mobile operators, are subject to any competition regulation, and if so, to what extent. It is the duty of the bidders to act in accordance with the relevant competition regulations. Any infringements of Danish and EU competition regulations are subject to the jurisdiction of the relevant competition authorities, i.e. the European Commission and/or the Danish competition authorities.

10.4 Rules on Bidder behaviour

This section summarises the rules, set out in clauses 17-25 of the Danish Energy Agency's Decision, see Annex B, that govern the behaviour of bidders prior to and after submission of applications until the date on which the licence(s) have been issued. The rules contain a general requirement that bidders refrain from any action that could disturb the auction as well as a number of specific rules in relation to collusion, restrictive practices and the behaviour of employees and legal entities that are related to the bidder.

As part of the application to take part in the auction, each bidder is required to confirm that the bidder, its connected persons and its insiders have complied and will comply with these rules. If at any point it becomes apparent that a bidder, its connected persons or its insiders have failed to comply with these rules, the bidder may be fined, excluded from the auction and/or required to pay damages, cf. clauses 81-86 of the Danish Energy Agency's Decision. In certain circumstances, the Danish Energy Agency may also revoke a successful bidder's licence if after award it emerges that

the bidder, its connected persons or its insiders breached these rules. The burden of proof is as defined under Danish law.

10.4.1 Definition of Confidential Information and Insiders

Confidential Information shall mean information of any nature, which, directly or indirectly, concerns a bid submitted by a bidder or a bid that a bidder considers submitting, and regardless of the media on which such information may exist, if such information - if made accessible to other parties - could affect the bids or the price that a bidder would offer. The results of the auction stages are regarded as confidential information, excluding the result of the final stage of the auction. Confidential information shall include any non-published information about a bidder's strategy in connection with the auction, including the bid that a bidder is willing to submit, which may affect the bidder's price or submission of a bid, and which may influence the bidder's fulfilment of its bid, as well as information about financing the bid sum, cf. clause 101 in the Danish Energy Agency's Decision.

An Insider means a person who, cf. clause 102 of the Danish Energy Agency's Decision,

- has received confidential information about a bidder; or
- who has undertaken to finance, wholly or partly, or otherwise assist a bidder or the bidder's connected persons in connection with the auction.

An insider can be a legal entity or a natural person. Two or more bidders can have common insiders. In this situation, the bidder shall take a number of special precautions, see section 10.4.4 for more details.

10.4.2 Collusion and other disruption to the Auction

A bidder, its connected persons and insiders shall, until the issue of the licences, refrain from:

- disclosing any confidential information to others, particularly bidders and their connected persons;
- entering into agreements with other bidders or their connected persons in relation to the auction; and
- undertaking any action that may adversely affect the auction prior to and after the application is submitted, and until the date of issue of the licence.

Mergers or takeovers that are not conducted on grounds of or in the interests of the auction or the licences shall not be deemed to constitute an act that could adversely affect the auction.

A bidder is allowed to disclose confidential information to other parties in certain situations, excluding any other bidder and its connected persons, but the bidder must take all reasonable measures to ensure that parties comply with the above provisions on disclosure and the provisions given in section 10.4.3 below. See clauses 17 and 18 of the Danish Energy Agency's Decision.

Bidders should be aware that any disclosure of confidential information may have influence on the possibility to gain exemption from the ownership rules (see section 10.3.4).

10.4.3 Restrictive agreements

There are three rules covering restrictive agreements as specified in clauses 19-21 of the Danish Energy Agency's Decision.

First, a bidder, its connected persons or insiders may neither prior to the submission of an application, nor after the submission of an application and until the date when the licences have been issued, enter into any agreement with another bidder or its connected persons regarding the auction.

Secondly, a bidder, its connected persons or insiders shall prior to the submission of an application, and after the submission of an application and until the date when the licences have been issued, refrain from any action that could have an adverse effect on the auction.

Thirdly, a bidder, its connected persons and insiders may neither prior to nor during the auction enter into any agreement or establish any understanding with a third party if the agreement or understanding directs this third party not to participate in the auction, or restricts the ability of this third party to participate in the auction.

10.4.4 Directors and employees, identifying obligations

Circumstances may occur where bidders, their connected persons and their respective insiders have common directors and/or employees. If this occurs, the bidders concerned need to ensure, as specified in clause 22 of the Danish Energy Agency's Decision, that the respective persons:

- are not involved in the submission of the application, or bidding, for both bidders or their connected persons; and
- are not in possession of, or obtain, any confidential information concerning both bidders or their respective connected persons or insiders.

A bidder shall prior to the submission of its application take all reasonable measures with a view to identifying its connected persons, associated persons and insiders, cf. clause 24 in the Danish Energy Agency's Decision.

A bidder shall also ensure that its connected persons take all reasonable measures to identify and inform the bidder if they have any board members or employees who are insiders in relation to another bidder, such that the bidder can take appropriate precautions to ensure that the rules on confidential information are not breached.

10.4.5 Penalties

The rules on sanctions are set out in clauses 81-93 of the Danish Energy Agency's Decision, cf. Annex B.

In the event that an individual bidder breaches the auction rules, the bidder can either be fined but permitted to continue in the auction, or be fined and excluded from the auction, depending on the severity of the breach. If a bidder is excluded from the auction, all bids of the bidder in question will be void. For the avoidance of doubt, there may be retrospective changes made to the process of the auction up to that point so far as it affects other bidders.

The Danish Energy Agency may impose a penalty of up to DKK 175 million if the Agency finds that the bidder violates the rules mentioned in clause 81.

In case the Danish State has sustained a greater loss as a result of the bidder's breach of the rules, the Danish State may claim compensation under the general rules of Danish law.

The amount of the agreed penalty will be determined following a proportionality assessment that will take account of the nature of the breach and the potential or actual damage caused by the breach, including any impact on the auction or mobile market.

Less severe infringements of the rules, such as a bidder's failure to submit information in connection with an application for the auction, where the actual or potential harm seems limited may therefore result in a lower penalty, or the Danish Energy Agency omitting to charge a penalty.

However, a severe breach of the rules applicable to the auction, such as collusion or intentional behaviour intended to unfairly distort competition or have an adverse effect on the auction, will result in a more significant penalty, possibly combined with exclusion from further participation in the auction.

Generally, where infringements are caused not by the bidder, but by its insiders and connected persons, then the Danish Energy Agency has discretion to waive penalties if it can be shown that the bidder has taken all reasonable steps to avoid the infringement and that the infringement has not caused major detriment to the auction, or to determine the size of the penalty with consideration thereof.

Events which may lead to exclusion from the auction and/or imposition of an agreed penalty include the following:

- A bidder has submitted false or misleading information to the Danish Energy Agency.
- A bidder or any of its connected persons or insiders is colluding or attempting to collude with any other person to distort the outcome of the auction process, or is acting in a way which is likely to distort the outcome of the auction.

- The bidder or any of its connected persons, or any insider, discloses confidential information to others to an unnecessary extent.
- The bidder or any of its connected persons or insiders is obtaining or attempting to obtain confidential information in relation to any other bidder.
- Any director or employee of a bidder or its connected persons, who is also a director or employee of another bidder or its connected persons, is taking part in the preparation of both bidders' participation in the auction or is receiving confidential information relating to both bidders and their connected persons.

Similarly, the Danish Energy Agency may impose a penalty on a licensee of up to DKK 175 million if upon the issue of the licence the Agency finds that the licensee has violated the rules mentioned in clause 81 or the rule in clause 68 regarding demand guarantee for payment instalments.

11 Application procedure

Section 11 explains the Application and Qualification Stages, including information on deposits and details on the Electronic Auction System (EAS) that will be used for all auction stages.

11.1 Application Stage

This section describes the process and requirements for applying to participate in the auction.

11.1.1 Bidders

A bidder shall mean a legal entity which intends or considers submitting an application for the auction or which has submitted an application for the auction. This follows from clauses 98-100 of the Danish Energy Agency's Decision, cf. Annex B.

Under clause 103 of the Danish Energy Agency's Decision, a legal entity means a public or private limited company, a partnership or the like.

There are no restrictions on the bidder's country of domicile.

Application for the auction may be submitted by any legal entity. However, there are rules on ownership structure that limit participation by certain bidders, including that a bidder cannot be under the joint control of two or more mobile operators. Reference is also made to section 10.3.6.

11.1.2 Submission of Applications

In order to take part in the auction, bidders must submit an application in writing not later than 15.00 hours (Danish time) on the application date. The application date will be announced on the Danish Energy Agency's website: <http://www.ens.dk>.

An application and all other documents associated therewith shall be submitted via "Digitale Udbud" (*Digital Tendering*) (which is a digital tendering system serving as an electronic communication system in connection with the auction). The application must not be submitted in other ways, including physical or electronic, via e-mail etc.

The tendering system Digitale Udbud may be accessed via this link: <https://eu.eu-supply.com/login.asp?B=KEFM>.

The application is submitted by the bidder uploading the application in the electronic tendering system. When the application has been uploaded and sent, bidders may, until expiry of the deadline for submitting applications, alter the content of the application or withdraw the application.

The Danish Energy Agency has no access to the content of the application until the deadline for applications has expired.

If the application contains several versions of the same document, the latest uploaded version shall apply. The time stamp of the tendering system shall decide which version of the document is the latest.

Bidders that submit an application via the tendering system will get a receipt to acknowledge submission from the Danish Energy Agency via the tendering system.

A bidder is only permitted to submit one application, see above.

11.1.3 Application content

The application shall consist of the following documents:

- A completed and signed application form with associated documents, cf. Annex H;
- Guarantee for Deposit; and
- A copy of a Bidder Declaration prepared by the Danish Energy Agency, signed by one or more natural persons who are empowered to sign for the bidder or who are otherwise authorised to bind the bidder, cf. Annex J.

The application shall be in Danish and be signed by the natural persons who are empowered to sign for the bidder or who are otherwise authorised to bind the bidder.

Application Form

The bidder must complete the Application Form as set out in Annex H and provide the associated information and documents specified below. The bidder should refer to the application checklist to ensure that all of the required information for the application has been provided.

The Application Form shall contain the following information and be accompanied by the following documents:

- The bidder's name and an address in Denmark, telephone number and e-mail address where the bidder may be contacted on weekdays between 09.00 and 17.00 hours (Danish time).
- Details and documentation of the names, positions and signatures of the natural persons who are empowered to sign for the bidder or who are otherwise authorised to bind the bidder in any respect regarding the application and the auction, and documentation of such power or authority. Documentation of the persons empowered to sign for the bidder or otherwise authorised to bind the bidder shall be attached together with documentation certifying the authenticity of the signatures (for example by two persons other than those empowered to sign stating that the signature is authentic, by signing their name, address and position).
- An exhaustive list of the names, positions, and addresses of the bidder's members of the board of management and board of directors or, in the absence of such, similar bodies.

- An exhaustive list of the bidder's insiders to the extent that the bidder is aware of such insiders.
- A detailed, clear and exhaustive outline of the ownership structure of the bidder, to the extent that the bidder is aware of such particulars, and in accordance with the instructions drawn up by the Danish Energy Agency, including:
 - a) a list of all connected persons and for each of them a statement to explain why the person concerned is a connected person, and if the person is a mobile operator, information to that effect; and
 - b) a list of associated persons and for each of them a statement to explain why the person concerned is an associated person, and whether the person is also an associated person in relation to another bidder.

The outline does not have to state persons that are connected persons in relation to a bidder exclusively as a result of the control over such legal entities by a state.

- A summary of any agreement according to which one or more persons have control over the bidder to the extent that the bidder is aware of such conditions.
- Evidence of any approval in accordance with clause 11 of the Danish Energy Agency's Decision.
- Further information about the rules on declaring information about ownership structure can be found in Annex K.

Deposit

As part of the application a bidder must provide security in the form of an irrevocable demand guarantee as deposit in the auction, cf. section 11.3.

An example of a template for the deposit guarantee can be found in the tendering system.

The demand guarantee shall state the duration of the guarantee and that it is irrevocable as mentioned in the example of the template for the guarantee.

Bidder Declaration

Bidders are required to provide a solemn declaration as set out in Annex J, signed by the bidder's representative(s) (as specified on the Application Form) as part of the application.

The Bidder Declaration is submitted as a declaration by the bidder that the bidder will comply with the rules and terms of the auction, and should minimise any doubt about the bidder's ability to comply with the licence terms after issue of the licence.

11.1.4 Opening and initial review of applications

After expiry of the deadline for applications, the Danish Energy Agency will proceed to open all the applications received in the tendering system. Applications that were not received in the tendering system within the deadline will be rejected. The Danish

Energy Agency will also undertake an initial review of the applications in order to determine:

- the identity of all bidders, their insiders and their ownership structure; and
- whether the applications are submitted in accordance with the specified rules and contain the correct information and documentation and that the documents are completed correctly without omissions.

If the Danish Energy Agency finds that the application has not been completed correctly and accurately, the Agency will request the bidder via the tendering system, within a time limit of four days, to correct the matter by supplementing, correcting or specifying the application or annexes; providing relevant documentation or providing security for deposit etc.

If the bidder has not corrected the matter via the tendering system within the time limit of four days, the Danish Energy Agency will reject the application or grant a further extension to correct the matter. The Danish Energy Agency will send a message about this via the tendering system.

11.1.5 Publication of list of bidders

Following the initial review of the applications, the Danish Energy Agency will notify all bidders via the tendering system of the identity of all other bidders whose applications have not been rejected and their ownership structure, providing a date via the tendering system by which the bidder must confirm the existence of, or absence of, any relations.

Information about bidders and the ownership structure of these will solely be published in the tendering system. The published information will not contain a list of insiders.

11.1.6 Notification and resolution of common ownership

Following the publication of the list of bidders and their ownership structure, each bidder is required to review this list and, via the tendering system, notify the Danish Energy Agency if they have a relation to another bidder. The rules regarding relations are set out in clause 12 of the Danish Energy Agency's Decision, cf. Annex B, and are summarised in section 10.3.2 above. The period for notification will be at least two business days from the date when the list of bidders is published in the tendering system.

In case there are such relations, each bidder will be granted a deadline of at least five business days to resolve the situation by terminating the relation, or one of the bidders abstaining from further participation in the auction. Alternatively, bidders may apply via the tendering system for an exemption from the ownership rules. The rules in regard to exemption are set out in clause 13 of the Danish Energy Agency's Decision and are summarised in section 10.3.4 above. As part of this process, the Danish Energy Agency may require further information via the tendering system from the bidders in addition to that provided in their application.

Bidders that do not resolve the relations and do not receive an exemption will have their application rejected. The Danish Energy Agency will send a message about this via the tendering system.

11.1.7 Amendments and correction of Applications

Bidders shall notify the Danish Energy Agency immediately via the tendering system of any changes in the factual information provided as part of their application, cf. clauses 41-44 in the Danish Energy Agency's Decision. In addition, up to the date of the issue of the licence, a bidder must notify the Danish Energy Agency immediately via the tendering system if it realises, at any point, that the information provided in its application is inaccurate and/or incomplete. These notifications must also specify the name of the bidder and should be signed by the persons who are authorised or otherwise able to bind the bidder.

A bidder's failure to comply with this requirement may result in the imposition of a penalty and exclusion from the auction.

On receiving such notifications, the Danish Energy Agency will assess or, as appropriate, re-assess whether or not the bidder's application can be accepted. If the bidder's application has already been accepted, the Danish Energy Agency will consider whether the information provided would lead to exclusion from further participation in the auction. If this is the case, the Danish Energy Agency will inform the bidder as soon as possible via the tendering system.

Notices from a bidder to the Danish Energy Agency regarding submission of an application for the auction process shall be given via the tendering system.

11.2 Qualification Stage

The Qualification Stage covers the period from the determination of qualified bidders through to the start of the auction.

11.2.1 Last day for withdrawal

Following the resolution of any relations (if applicable), the Danish Energy Agency will notify each bidder via the tendering system of whether it has qualified to participate in the auction and of the last day on which qualified bidders may withdraw their application without being subject to a financial penalty. The last day for withdrawal will be at least two working days after the deadline for resolution of any relations between the bidders.

Bidders that withdraw on or before the last day for withdrawal will not be subject to any penalties. Withdrawal shall be notified to the Danish Energy Agency via the tendering system.

After this, bidders cannot withdraw the application.

11.2.2 Announcement of Qualified Bidders

After the last day for withdrawal, the Danish Energy Agency will publish a list of all qualified bidders on its website and in the tendering system. If there are no qualified bidders, the auction will be cancelled.

11.2.3 Notification of the first auction stage

After the announcement of qualified bidders, the Danish Energy Agency will notify all qualified bidders via the tendering system to participate in the first auction stage. In the notification the Danish Energy Agency will specify a date and time for a bidder seminar and a mock auction, which will take place shortly before the start of the first auction stage: Assignment of frequency lots with a coverage obligation.

11.2.4 Procedure if there is only one bidder

If there is only one qualified bidder, an auction is not necessary, and an alternative process will be used. In that case the Danish Energy Agency will:

- inform the qualified bidder that it is the only qualified bidder; and
- assign the bidder frequencies up to the spectrum cap (or less, if desired by the bidder) in the bands in which the bidder wants to acquire frequencies, including those involving the full coverage obligation in the 2100 MHz frequency band and the coverage obligation in the 3.5 GHz frequency band, and at a licence price corresponding to the reserve price for the assigned frequencies.

Thus, no spectrum will be assigned unless the qualified bidder is willing to fulfil the coverage obligation in all three coverage area groups in the 2100 MHz frequency band and the coverage obligation in the 3.5 GHz frequency band.

Any frequencies assigned to the qualified bidder will be placed at the bottom in the 2100 MHz and 3.5 GHz frequency bands, in the middle in the 1.5 GHz frequency band and at the top in the 26 GHz frequency band.

11.3 Deposit

11.3.1 Deposit, general

Bidders shall provide security in the form of an irrevocable demand guarantee for deposit, cf. clauses 32-35 of the Danish Energy Agency's Decision. The deposit shall be DKK 175 million. The content of the guarantee for deposit shall conform to the template for the guarantee (appended to the auction documents in the tendering system). The guarantee must be valid for a period of at least one calendar year from the application date.

The guarantee shall be signed by one or more persons who are empowered to sign for, or are otherwise authorised to bind the issuing bank or insurance company, and

also in conformity with the rules and practice for issuing guarantees applicable to the relevant bank or insurance company. Documentation for empowerment to sign or authorisation shall be appended.

In case the guarantee is signed by physical signatures, documentation certifying the authenticity of the signatures shall be appended (for example by two persons other than those empowered to sign stating that the signature is authentic, by signing their name, address and position) unless digital signatures have been used at the time of signing.

The guarantee shall be supplemented with a declaration signed by one or more persons who are empowered to sign for the bidder or otherwise authorised to bind the bidder, cf. section 11.1.3 under "application form" about information and documentation for these persons, formulated in accordance with the template example of the guarantee for deposit found in the tendering system.

The guarantee for deposit cannot be withdrawn, and the Danish Energy Agency may draw down on the guarantee in order to cover penalties or compensation. Deposits in the form of a guarantee shall not accrue interest.

11.3.2 Release of Deposit

The guarantee is released by the Danish Energy Agency in accordance with the rules specified in clause 36 of the Danish Energy Agency's Decision, cf. Annex B.

The guarantee is released by notifying the bidder via the tendering system and the guarantor by e-mail in the following cases:

- an application is rejected;
- where a bidder is notified that it will not be assigned a licence (after the determination of winning bids); or
- where a bidder is notified that it will be assigned a licence (after the determination of winning bids), and the bidder has paid the licence price in full or has paid 10% of the licence price and has provided a payment guarantee for the deferred payment.

12 The Auction

This section describes the Auction System for running the auction and the rules for the auction, which consists of five phases:

- First phase: the **coverage lots assignment phase** in which 2.1-D and 3.5-D lots are assigned using a sealed bid process, under the constraint that each bidder can acquire at most one lot in each of these two categories;
- Second phase: the **2.1 GHz coverage obligation assignment phase** in which winners of 2.1-D lots are assigned one of 2.1-D1, 2.1-D2 or 2.1-D3;
- Third phase: the **main spectrum assignment phase** in which the remaining lots except 26-U are assigned;
- Fourth phase: the **26 GHz assignment phase** in which 26-U lots are assigned; and
- Fifth phase: the **specific frequencies assignment phase** in which specific frequencies are assigned to each winner of frequency-generic lots.

12.1 The Auction System (AS)

All auction phases will be conducted using an online Auction System (AS). Bidders are required to submit their bids using the AS.

The AS will be accessible securely over the public internet through a standard web browser. Access to the AS will be controlled by means of a bidder-specific digital certificate and a password. The digital certificates will be distributed in advance of the auction and must be installed on any computer that bidders wish to use to access the AS. Details about the AS will be provided to bidders after the Qualification Stage.

12.1.1 Training in the use of the AS

Bidders will be offered a bidder seminar and participation in a mock auction separately for the first and second phase and the third and fourth phase respectively.

Bidders should participate in these activities in order to be able to use the AS in the best possible way and test its facilities. The Danish Energy Agency will specify the dates for holding the bidder seminar and mock auctions after announcing the Qualified Bidders. The bidder seminar and the mock auctions will be held separately for each bidder, cf. the timetable in section 10.2.

The bidder seminars will take place online. The Danish Energy Agency will offer general information to bidders about the auction and about the use of the AS.

The first seminar and mock auction will cover the first two auction phases. Bidders will participate remotely, logging into the AS from their own premises using their authentication credentials. This provides an opportunity for bidders to verify that they can successfully log into the AS using their equipment and the authentication credentials provided. The second seminar and mock auction will cover the third, fourth and fifth phases.

Prior to the first bidder seminar, each bidder will be provided with its authentication credentials for accessing the AS and the user manual for the AS. The Danish Energy Agency expect to distribute these using a secure online file share facility.

12.1.2 Submission of bids

Bids are submitted through bid forms presented by the AS. Bid forms will be presented by the AS as soon as a bidding round is scheduled (at which point the AS will also display the round schedule, i.e. start time, end time and duration of the round).

The bid forms will provide the relevant information about the auction for the respective phase in accordance with the auction rules and the corresponding input fields in which bidders can enter their bids.

Across all phases, the procedure for submitting a bid involves two steps:

- In the first step, the bid form can be edited, allowing the bidder to enter or modify its bids. The bid form must then be submitted for validation.
- If the bid is valid, the bidder will be presented with a locked form to confirm submission of the bid. Alternatively, the bidder may revert to the previous step if it wishes to make any amendments. If the bid form fails validation, then the user is returned automatically to the first step, with details about why validation failed.

Upon confirmation of bid submission, the AS will show a summary of the bids submitted.

If the bidder fails to complete the second step in a round it will be deemed not to have submitted any bids regardless of whether it has previously entered or validated bids. In this case default bids for the corresponding round, if any, will apply.

Once a bidder has confirmed its bid submission it will not be able to withdraw or modify its bid for that round. Bidders cannot confirm multiple submissions in a round. Thus, the bid form should include all of the bids that the bidder wishes to submit in that round.

Bidders can check their bid (the first step) as soon as the bid form is displayed, but can only confirm and submit the bid form when the scheduled round is in progress (including any extension triggered the bidder).

12.1.3 Extension rights

An extension right provides a bidder with an additional 30 minutes ('the extension period') to complete its bid submission if it has not done so before the scheduled end of the round.

Each bidder will have a total of four extension rights, which it may use in any of the auction phases. Failure by a bidder to confirm submission of its bid form before the scheduled end time of a round will trigger the extension, unless the bidder is not **able** to make a submission in that round. Bidders who do not wish to submit any bids and

do not wish to use an extension right in a given round should confirm submission of an empty bid form for that round (or where default bids apply, a bid form containing only the default bids).

A bidder who had an extension period triggered will be able to complete its bid submission during this period.

If an extension period is triggered for any bidder, the AS will notify bidders of the end time for the extension period. The extension period lasts at most 30 minutes but may terminate earlier if all bidders for whom an extension period has been triggered complete their respective bid submissions before the end of the extension period.

For the avoidance of doubt, bidders without any extension rights left will not be able to submit a bid after the scheduled end time of the round even if another bidder has triggered an extension.

12.2 Coverage lots assignment phase (first phase)

12.2.1 Overview

The phase provides an opportunity for bidders to acquire larger spectrum blocks that are subject to coverage obligations. There are three coverage lots available each in lot categories 2.1-D and 3.5-D and bidders can bid on at most one lot in each of these categories.

The decision whether to place a bid (irrespective of whether such a bid is successful) has implications for the bids the bidder can place in the main spectrum assignment phase. Specifically:

- only bidders who have bid for a 3.5-D lot will be allowed to bid for 3.5-U lots and the 3.5-P lot in the main spectrum assignment phase; and
- bidders who have not placed any bid in the first phase of the auction are required to bid on at least one a package containing at least one lot in the first round of the main spectrum assignment phase.

This phase is conducted as a non-combinatorial sealed bid auction, where:

- each participant can (but need not) make a bid for a 2.1-D lot and a 3.5-D lot, specifying the price at which the bidder is prepared to acquire that lot;
- in each lot category, the highest three bids (or fewer, if fewer than three bids were submitted) become winning bids, with ties being broken at random; and
- the amount of the highest bid in the respective category that has not been selected as a winning bid, or the reserve price in case of three or fewer bids having been placed in the category, will be included in the total licence price each successful bidder will have to pay

Any 2.1-D lots that remain unassigned after the second phase will be offered in the main spectrum assignment phase.

The spectrum included in any 3.5-D lots that remain unassigned will be offered in the main spectrum assignment phase and the 26 GHz assignment phase respectively in the form of additional 3.5-U lots and additional 26-U lots.

12.2.2 Lots available

The lots available in this phase are:

- three generic 2.1-D lots, each including 2x10 MHz in the 2.1 GHz band and subject to one third of the coverage obligations defined for the 2.1 GHz band (the specific coverage obligation for each of the lots is determined in the following phase) with a reserve price of DKK zero; and
- three generic 3.5-D lots, each including 80 MHz in the 3.5 GHz band and 400 MHz in the 26 GHz band, subject to the coverage obligation defined for the 3.5 GHz band, with a reserve price of DKK 75 million.

12.2.3 Bids

A **bid** is a price offer for one of the generic lots for which it is made. The bid indicates the maximum price that the bidder would be prepared to pay for the corresponding lot and imposes an upper limit on the amount the bidder may be required to pay.

A bidder may bid for a lot in none, either or both categories. Bids for 2.1-D lots and bids for 3.5-D lots are independent, i.e. a bidder may win any of the bids it makes independently of whether it wins the other bid.

Bids must be at least the reserve price for the corresponding lot and must be expressed in whole DKK thousands.

12.2.4 Scheduling the bidding round

The Danish Energy Agency will set the schedule for the bidding round. The round will not start earlier than one week after the announcement of qualified bidders, cf. the time schedule in section 10.2. The Danish Energy Agency anticipates that the bidding round will last one hour and take place between 10.00 and 16.00 hours on a single business day.

12.2.5 Submission of bids

The bid form will report the reserve price for 2.1-D lots and 3.5-D lots and provide an input box for each lot category where the bidder can enter its bid for the respective category. If the bidder does not wish to make a bid for a lot category, then it should leave the corresponding input box empty.

12.2.6 Evaluation of bids

The winning bids for this phase will be:

- the highest three bids for 2.1-D lots (or fewer if fewer than three bids have been received), with any ties broken at random; and

- the highest three bids for 3.5-D lots (or fewer if fewer than three bids have been received), with any ties broken at random.

For bidders who have won a 2.1-D lot, the amount equal to the highest unsuccessful bid, or the reserve price if all bids have become winning bids for 2.1-D lots, will be included in the total licence price that each successful bidder will have to pay. The successful bidders will be able to submit bids in phase 2, which determines which of the 2.1-D lots they will be assigned.

For bidders who have won a 3.5-D lot, the amount equal to the highest bid that has not been selected as a winning bid, or the reserve price if all bids have become winning bids, will be included in the total licence price that each successful bidder will have to pay.

Example 1: Evaluation of bids in the coverage lots assignment phase

Assume that four bidders have submitted the following bids:

Lot category	Bidder 1	Bidder 2	Bidder 3	Bidder 4
2.1-D	15	20	0	-
3.5-D	150	80	75	90

The winning bids (shown in bold in the table above) and prices to be included in the total licence price (shown in the table above in italics) are:

- Bidder 1, Bidder 2 and Bidder 3 each win a 2.1-D lot, and are required to pay DKK zero for this lot; and
- Bidder 1, Bidder 2 and Bidder 4 each win a 3.5-D lot, and are required to pay DKK 75 million for this lot.
- All four bidders will be entitled to bid on 3.5-U lots in the main spectrum assignment phase.

12.2.7 Information provided in relation to phase results

The Danish Energy Agency will notify **each bidder** of the lots it has been assigned and the price of these lots to be included in the total licence price.

The Danish Energy Agency will notify **all bidders** of:

- the total number of 2.1-D lots assigned in this phase;
- the total number of 3.5-D lots assigned in this phase;
- the total number of 3.5-U lots that will be included in the main spectrum assignment phase;
- the total number of 26-U lots that will be included in the fourth phase; and
- the date and time for the start of the 2.1 GHz coverage obligation assignment phase, which will be at least one hour from notification of results of the coverage lots assignment phase.

12.3 2.1 GHz coverage obligation assignment phase (phase 2)

12.3.1 Overview

This phase will assign the 2.1-D1, 2.1-D2 and 2.1-D3 amongst the winners of 2.1-D lots.

Only winners of 2.1-D lots can participate in this phase – we refer to these bidders as the ‘participants’. Other bidders may observe progress of the phase but will not be able to submit a bid (and will not trigger an extension period by failing to submit a bid before the scheduled end of the round).

This phase uses a combinatorial second-price sealed bid round.

- There is a single bidding round in which participants can make their bids. As each participant is guaranteed to win one of 2.1-D1, 2.1-D2 or 2.1-D3, bids for the different lots reflect the participant’s preference for the different specific lots. If no bid is placed for a lot, the participant is deemed to have made a bid of DKK zero for that lot. If a participant does not place any bids, then the participant will be deemed to have made a bid of DKK zero for each of the lots.
- The winning bids will be those that achieve the highest sum of bids subject to the requirement that each participant wins exactly one lot, and that each lot is assigned at most once.
- Winners pay a price based on the opportunity cost of assigning the lot to that participant, which will not exceed that participant’s winning bid, but may be lower.

The specific 2.1-D lots that remain unassigned after this phase (if any) will be offered in the main spectrum assignment phase.

12.3.2 Lots available

The lots available in this phase are:

- 2.1-D1;
- 2.1-D2; and
- 2.1-D3.

12.3.3 Bids

A **bid** is a price offer for one of the lots available. The participants will be deemed to have placed a bid of DKK zero on any lot for which they do not specify a bid. The bid indicates the maximum price that the participant would be prepared to pay for the corresponding lot and imposes an upper limit on the amount the participant may be required to pay.

12.3.4 Scheduling the bidding round

The Danish Energy Agency will set the schedule for the bidding round. The round will not start earlier than one hour after the announcement of results of the coverage lot assignment phase. The Danish Energy Agency anticipates that the bidding round will last one hour and take place between 10.00 and 16.00 hours on a single business day.

12.3.5 Submission of bids

The bid form will provide an input box for each of the lots where the participant can enter its bid for the respective lot. If the participant does not enter a bid for a lot, a default bid of DKK zero will apply for that lot.

12.3.6 Evaluation of bids

A feasible bid combination in this phase is a combination of bids that includes:

- exactly one bid from each participant;
- at most one bid for 2.1-D1 (across all participants);
- at most one bid for 2.1-D2 (across all participants); and
- at most one bid for 2.1-D3 (across all participants).

The value of a feasible bid combination is the sum of the bids included in the bid combination.

The winning bid combination is the feasible bid combination with the greatest value. If there are several feasible bid combinations with the same greatest value, then the winning bid combination will be randomly selected amongst these. The winning bids are the bids included in the winning bid combination.

Prices to be included in the total licence price, which the participants shall pay, are determined using an opportunity-based pricing rule as follows:

For each participant, the price for the assignment of the specific 2.1-D lot in its winning bid is the difference between:

- the greatest value across all feasible combinations that could be achieved in a hypothetical scenario where the participant had submitted bids of DKK zero for all lots; and
- the sum of winning bids from other participants.

Example 2: Evaluation of bids in the 2.1 GHz coverage obligation assignment phase

Assume that three bidders have submitted the following bids:

Lot	Bidder 1	Bidder 2	Bidder 3
2.1-D1	60	55	45
2.1-D2	0	50	20
2.1-D3	0	0	0

The winning bids are shown in bold: Bidder 1 wins 2.1-D1, Bidder 2 wins 2.1-D2 and Bidder 3 wins 2.1-D3. The value of the winning combination is 110.

The second phase price for each winner is determined as follows:

Winner	Greatest value across all feasible combinations if the bidder had bid DKK zero for all lots	Sum of winning bids from other winners	Price for the winner
Bidder 1	95	50	45
Bidder 2	80	60	20
Bidder 3	110	110	0

12.3.7 Information provided in relation to phase results

The Danish Energy Agency will notify **each participant** of the lot it has been assigned and the phase price to be included in the participant's total licence price for being assigned this specific lot.

The Danish Energy Agency will notify **all bidders** of the date and time for the start of the main spectrum assignment phase and which of the 2.1-D lots (if any) will be included in this phase. There will be at least one full working day between the notification of results of this phase and the start of the main spectrum assignment phase.

12.4 CMRA rules (for the third and fourth phases)

12.4.1 Overview

The third and fourth phases provide an opportunity for bidders to acquire multiple spectrum lots subject to not exceeding their respective spectrum caps.

These phases use a Combinatorial Multiple Round Ascending (CMRA) auction format in which bidders can make mutually exclusive bids for 'packages' of lots (so that if the bid becomes a winning bid, the bidder will win all lots included in the package), of which at most one can be selected as a winning bid.

Each phase is conducted in one or more rounds, where the Danish Energy Agency sets the round prices for the available lots, and bidders indicate their bids for available

lots at the prevailing round prices. The Danish Energy Agency will prior to the main spectrum assignment phase and the fourth phase notify the Bidders of indicative price increments in the AS. These price increments can be changed at any time on the basis of the progression of the auction.

Bidders can make bids at the round prices ("headline bids") along with any other bids ("additional bids") for packages they would be willing to acquire at amounts that cannot exceed the prevailing round prices. If a bidder does not submit a headline bid in a bidding round, then the bidder is assumed to have submitted a headline bid for zero lots (which may be included in the winning combination). Bids must comply with the activity rules to ensure that bidding is progressive.

Bidding ends when there exists a combination of bids (among all the bids submitted in all rounds) that:

- can be accommodated with the available supply of lots;
- includes at most one bid from each bidder;
- achieves the highest possible value across all the combinations of bids that satisfy the previous two requirements; and
- includes one bid from each bidder.

This combination then becomes the winning combination with ties being broken according to the criteria set out in section 12.4.6

Winners will be required to pay the full amount of their winning bid for the lots they are assigned in this phase. These amounts will be included in the total licence prices.

Please note the following points:

- The requirement that the winning combination has to include exactly one bid from each bidder guarantees that bidders are not at risk of leaving the auction empty-handed unless they have explicitly made a bid for an empty package by ceasing to make headline bids.
- As the evaluation of bids takes into account all of the bids received in all of the rounds, some bids at prevailing round prices could be outbid by bids at lower prices. This may occur if it is possible to assign a greater number of lots, resulting in a greater total value. Therefore:
 - a) bidding may continue even if it were feasible to accept all the headline bids submitted in the latest round, if the highest value of bids might be achieved by accepting some of the additional bids and leaving out some of the headline bids;
 - b) bidding could end even if there is excess demand at prevailing round prices (i.e. across the headline bids in the latest round), if some bidders have made additional bids that are included in the winning combination.

12.4.2 Bids

A package is a combination of lots and specified by stating a number of lots in each lot category.

A bid must specify:

- the package for which the bid is made; and
- the price that will be included in the bidder's total licence price if the bid were a winning bid.

A bid must be at least the reserve price of all the lots included in the package and must be expressed in whole DKK thousands.

All bids must satisfy the spectrum caps set out in section 1.3. Therefore, bidders cannot bid for a package that includes more lots than the bidder can acquire under the applicable spectrum caps, considering any lots and spectrum already assigned in the previous phases.

Note that the spectrum cap in the 2.1 GHz band is a cap on the number of lots that a bidder can acquire, but that the lots in that band (2.1-D and 2.1-U) are of different sizes. Thus, if any 2.1-D lots are included in the main spectrum assignment phase, the total bandwidth that a bidder can acquire in that phase depends on the combination of 2.1-D and 2.1-U lots in the package. For example, bidders who have been assigned a 2.1-D lot in the previous phase will be able to bid for up to three lots across categories 2.1-D and 2.1-U in the main spectrum assignment phase and could therefore acquire up to 2x25 MHz overall if no 2.1-D lots are included, and up to 2x35 MHz overall if two 2.1-D lots are included.

Bidders will not be assigned any combination of lots for which they have not made at least one bid. If a bidder is assigned a package it will be required to pay the highest amount across all the bids it has made for the package in the phase.

All bids submitted are binding and will be taken into account in determining the winning bids for the corresponding phase, unless they are voided by the Danish Energy Agency (under the provisions in section 12.7).

The AS will not allow bidders to submit bids that do not comply with these requirements.

12.4.3 Bidding rounds

Each phase proceeds in bidding rounds. Each bidding round is a time window set by the Danish Energy Agency for bidders to submit their bids.

In each bidding round, the Danish Energy Agency will set a round price per lot for each lot category, and bidders submit their bids for the round, as explained below.

Round prices

The round prices define the price per lot in each lot category, which determine bid amounts for headline bids made in the round. Round prices may increase from round to round in accordance with the provisions set out in section 12.4.6.

In any given bidding round, the round price of a package is the sum of round prices of all the lots included in the package.

Scheduling of rounds

The Danish Energy Agency will set the schedule for carrying through the bidding rounds and the round prices that will apply to each bidding round.

The Agency does not anticipate to schedule bidding rounds with a duration of less than 30 minutes or more than 2 hours.

The bidding rounds will be scheduled to start between 09.00 and 17.00 hours on Danish business days.

The Danish Energy Agency will schedule bidding rounds at least 5 minutes before the scheduled start of the round.

When a bidding round is scheduled, the AS interface of each bidder will, in addition to the bid form and the round schedule, display:

- the bidder's eligibility (see section 12.4.6); and
- the number of extension rights still available for the bidder, see section 12.1.3.

12.4.4 Submission of bids

Types of bids

There are two types of bids:

- headline bids; and
- additional bids.

A headline bid must be at the prevailing round prices and will be placed by specifying a package with the bid amount being automatically calculated by the AS.

In each bidding round, each bidder may submit at most one headline bid. If in a given bidding round a bidder does not make a headline bid, or if the bidder specifies an empty package for its headline bid, then its headline bid for that round is a bid for an empty package (i.e. containing zero lots in each category), with a bid amount of DKK zero.

Headline bids are crucial for the application of the activity rules and the calculation of price increments if a further bidding round is needed.

Additional bids can be made at or below the prevailing round prices. Bidders can make multiple additional bids along with their headline bid but are not required to do so. To make an additional bid, bidders need to specify the bid package, and the bid amount.

Bid amounts of additional bids cannot exceed the round price of the package (i.e. the sum of the number of lots multiplied by the round price across all lot categories) and must not be below the reserve price of the package. The bid amount must satisfy any constraints arising from the activity rules and the other bids made by the bidder. Bidders can make an additional bid for an empty package, which will make it possible for the phase to end without the bidder winning any lots. However, any bid for an empty package must have a bid amount of DKK zero.

Submission of headline bids

To submit a headline bid the bidder must specify, in the relevant fields of the bid form, the corresponding package. The bid amount will then be automatically calculated by the AS as the round price of the package and will be shown on form.

A bidder will only be able to submit a headline bid for a non-empty package if it is eligible to do so under the activity rules, as set out in section 12.4.6.

If the bidder does not submit a headline bid in a round, then the bidder will be deemed to have made a 'zero bid', which is a bid for an empty package with a bid amount of DKK zero. The activity rules, as set out in section 12.4.6, imply that the bidder will then not be able to submit a headline bid for a non-empty package in any following round.

Submission of additional bids

To submit an additional bid the bidder must specify, in the relevant fields of the bid form, the package and the amount.

Previous headline bids made by the bidder will automatically be included as additional bids. However, the bidder may be able to increase the bid amount for these bids, subject to the activity rules.

Bidders may submit additional bids for any package that they could acquire without violating the spectrum cap.

The amount of an additional bid cannot be lower than the greater of:

- the reserve price of the package; and
- the amount of any bid for the same package that the bidder may have submitted previously.

The amount of an additional bid cannot exceed the smaller of:

- the round price of the package; and
- any applicable relative cap on the amount arising from the activity rules set out in section 12.4.5.

12.4.5 Activity rules

Eligibility points

Each lot is associated with a number of eligibility points, which are relevant for the application of the activity rules as bidding constraints arise when a bidder loses eligibility as a result of switching its headline bid from one package to another.

The eligibility points associated with each lot in the various categories is specified for each phase.

Package eligibility

The eligibility of a package is calculated as the sum of eligibility points of all lots included in the package.

Activity

The activity of a bidder in a round is equal to the eligibility of the package contained in the bidder's headline bid in that round.

A reduction in activity may limit the bidding capability of the bidder in subsequent rounds. This is explained below.

Bidder eligibility

A bidder starts each phase with an initial eligibility. The initial eligibility would allow a bidder to bid for the all of the lots possibly included in that phase and ignores the relevant spectrum caps (which implies that the bidder will not be able to make bids on packages whose package eligibility equals the bidder's initial eligibility).

The eligibility of a bidder will be adjusted as follows:

- in the first bidding round, the bidder's eligibility will be equal to its initial eligibility; and
- in all subsequent bidding rounds, the bidder's eligibility will be equal to the smaller of the its eligibility and its activity in the preceding round.

Therefore:

- If in bidding round r a bidder makes a headline bid with activity smaller than the bidder's eligibility, then the bidder's eligibility will be reduced going forward. Specifically, the bidder's eligibility in bidding round $r+1$ will be set to its activity in bidding round r .
- If in round r a bidder makes a headline bid with activity greater than or equal to the bidder's eligibility, then the bidder's eligibility will be maintained for the following round. Specifically, the bidder's eligibility in bidding round $r+1$ will be set to its eligibility in round r .

Given this, the submission of a headline bid with activity smaller than the bidder's eligibility at the start of the round will result in a reduction of the bidder's eligibility.²² We call such bids eligibility-reducing bids. Eligibility-reducing bids create constraints for the bidder in subsequent bidding rounds. This is explained below.

Example 3: Calculation of bidder eligibility as the auction progresses

Suppose that a bidder makes a headline bid in the first round for the package containing two 2.1-U lots, two 2.3-U lots and six 3.5-U lots. Therefore, the bidder's activity in the first round is 120 points (ten points for each of the two 2.1-U lots, twenty point for each of the two 2.3-U lots and ten points for each of the six 3.5-U lots). The bidder's activity is smaller than its eligibility, and therefore, its eligibility for the following round will be set to its activity in round one, i.e. 120 points.

In the second bidding round the bidder makes a headline bid for the package containing two 2.1-U lots, two 2.3-U lots and the 3.5-P lot. The bidder's activity in the second round continues to be 120 points (ten points for each of the two 2.1-U lots, twenty point for each of the two 2.3-U lots and 60 points for the 3.5-P lot), as the 3.5-P lot has the same number of eligibility points as six 3.5-U lots. The bidder's activity is equal to its eligibility, and thus its eligibility in the third bidding round will continue to be 120 points.

Suppose now that in the third bidding round the bidder stops including 2.3-U lots in its headline bid. Thus, it makes a headline bid for the package containing two 2.1-U lots and the 3.5-P lot. The bidder's activity in the third round is therefore 80 points (ten points for each of the two 2.1-U lots and 60 points for the 3.5-P lot). In this case the bidder's activity is smaller than its eligibility in the bidding round, and therefore its eligibility for the fourth bidding round will be set to its activity in the third bidding round, i.e. 80 points.

In the fourth bidding round the bidder makes a headline bid for the package containing two 2.1-U lots and four 3.5-U lots. The bidder's activity in the fourth bidding round is now 60 points (ten points for each of the two 2.1-U lots, and ten points for each of the four 3.5-U lots). Therefore, the bidder's eligibility is smaller than its activity in this bidding round, and thus its eligibility for the following round will be set to its eligibility, i.e. 60 points.

Constraints arising from the spectrum caps

Bidders are only allowed to bid for packages which they can acquire under the spectrum caps, considering any lots they have been assigned in previous phases.

Constraints arising from eligibility-reducing bids

Eligibility-reducing bids imply a reduction in activity relative to the preceding bidding round. An eligibility-reducing bid will limit, in all future bidding rounds, what a bidder

²² Note that the headline bid in the first round will always be an eligibility-reducing bid, as the spectrum caps prevent a bidder from making a bid with activity equal to its initial eligibility.

may bid for packages with eligibility between the bidder's previous eligibility and the bidder's future eligibility.

These constraints are called relative caps, and will constrain the bids that the bidder can make for packages with an eligibility that is:

- greater than the eligibility of the package of the eligibility-reducing bid; but
- not greater than the bidder's eligibility in the bidding round where the bidder submitted the eligibility-reducing bid.

The bid amount of any bid that is subject to a relative cap cannot exceed:

- the highest bid amount across all the bids that the bidder has made for the bid package of the eligibility-reducing bid (including bids submitted in previous bidding rounds and any bids that the bidder may submit in the current bidding round for this package along with the bid subject to the relative cap); plus
- the difference between the round prices of the package of the bid subject to the cap and the round price of the package of the eligibility-reducing bid in the round in which the bidder submitted the eligibility-reducing bid.

The cap is relative in that it constrains the bid amount that the bidder can specify for the constrained bid *relative* to the highest bid amount across all the bids that the bidder submits for the package of the eligibility-reducing bid that generated the relative cap. This means that the bidder may be able to increase its bid for a package subject to a relative cap if it can (and does) increase its highest amount for the package of the eligibility-reducing bid that generated the cap.

Example 4: Relative caps

Suppose that in round r a bidder has eligibility n and submits an eligibility-reducing bid for package X , with eligibility m .

Then this will create a relative cap on any bid that the bidder may submit for packages whose eligibility is greater than m , but not greater than n .

Suppose that package Y is one of these packages. From round $r+1$ onwards, any bid that the bidder makes for package Y will be constrained by this relative cap.

When calculating the value of the relative cap for bids for Y , we need:

- the bidder's highest bid amount across all the bidder's bids for X (the package of the eligibility-reducing bid that generated the cap) – denote this by B_X ; and
- the difference between the round price of Y and the round price of X in the round in which the bidder made the eligibility-reducing bid (round r) – denote this as $P_Y - P_X$.

Then the relative cap requires that the bid amount of a bid for Y must not exceed $B_X + P_Y - P_X$.

Activity rules for the submission of headline bids

A bidder with zero eligibility will not be able actively to submit a headline bid that is not the zero bid. The zero bid will also be automatically submitted by the AS on behalf of the bidder if the bidder chooses not to make a bid in the round.

Subject to not violating the spectrum caps, a bidder with eligibility greater than zero may submit a headline bid for:

- any package with eligibility not greater than the bidder's eligibility in the bidding round; or
- a package with eligibility greater than the bidder's eligibility in the round, if the bid does not violate any applicable relative caps.

Where relevant, the bidder may be able to submit additional bids besides its headline bid in order to ensure compliance with the relative cap (subject to such bids being permitted under the activity rules for the submission of additional bids).

Activity rules for the submission of additional bids

A bidder may submit additional bids for any packages it could acquire without violating the spectrum caps, subject to the following constraints:

- the bid cannot exceed the round price of the package; and
- if the bid package has an eligibility greater than the bidder's eligibility in the round, then the bid must satisfy the relative cap.

Where relevant, the bidder may be able to submit further additional bids in order to ensure compliance with the relative caps, provided that such bids also satisfy the constraints above. See the example below.

Example 5: Activity rules for headline bids and additional bids

Suppose that in the third phase a bidder submits the headline bids at the round prices shown in the table below (for presentational convenience, we ignore 2.3-U and 3.5-U lots). The implications of the activity rules are as follows.

Round 1

Eligibility	Prices (DKK million)				Headline Bid	
	1.5-B	1.5-M	1.5-T	2.1-U	Package	Amount (DKK mill.)
490	25	25	25	25	four 1.5-M	100

In the first round of the third phase the bidder has an initial eligibility of 490 points, and submits a headline bid for a package of four 1.5-M lots. The activity of the bidder is thus 12 points. This is an eligibility-reducing bid that will set a relative cap for all packages with eligibility greater than 12 and up to 490 points.

Round 2

Eligibility	Prices (DKK million)				Headline Bid	
	1.5-B	1.5-M	1.5-T	2.1-U	Package	Amount (DKK mill.)
490	25	25	25	25	four 1.5-M	100
12	25	30	25	25	1.5-B, 1.5-T	50

In the second round, the bidder's eligibility is twelve, which is the smaller of the its eligibility and its activity in the preceding round. In response to an increase in the price of 1.5-M lots the bidder reduces its demand, submitting a headline bid for a package of one 1.5-B lot and one 1.5-T lot. The bidder's activity is now 6 points. This is an eligibility-reducing bid that will set a relative cap for all packages with eligibility greater than 6 and up to 12 points.

Round 3

Eligibility	Prices (DKK million)				Headline Bid	
	1.5-B	1.5-M	1.5-T	2.1-U	Package	Amount (DKK mill.)
490	25	25	25	25	four 1.5-M	100
12	25	30	25	25	1.5-B, 1.5-T	50
6	25	35	30	25	2.1-U	25

In the third round, the bidder's eligibility is six (the smaller of the its eligibility and its activity in the preceding round). Suppose now that in response to the further increase in the price of 1.5 lots the bidder wishes to switch to bidding for one 2.1-U lot. As, the eligibility of this package is above the bidder's eligibility for the round, the bidder will only be able to submit a headline bid for a 2.1-U lot if this does not imply a violation of the relative caps.

Suppose that the bidder has not submitted any additional bids so far and does not place any additional bids in this round. The relative cap on the package consisting of a single 2.1-U lot is calculated as follows:

- First we identify the eligibility-reducing bid that generated the relative cap (the 'constraining bid'). In this case it is the bidder's headline bid for the package including 1.5-B, 1.5-T, which it submitted in the second round.
- Then we identify the highest bid amount across all the bids that the bidder has made so far for the package of the constraining bid. Given that the bidder has not made any other bids for this package, the highest bid amount is that of the eligibility-reducing bid, which is DKK 50 mill.
- The next step is to identify the difference between the round price of the package of the bid which is subject to the relative cap (the 2.1-U lot) and the round price of the bid package of the constraining bid (1.5-B, 1.5-T lots) in the bidding round when the constraining bid was made (the second round). The price of the 2.1-U lot in the second round was DKK 25 mill., and the price of the 1.5-B, 1.5-T package in the second round was DKK 50 mill. Thus, the difference is DKK 25 mill.
- Finally, we can calculate the relative cap on the package consisting of the 2.1-U lot as: $50 - 25 = 25$.

Therefore, the current relative cap for any bids for the package consisting of the 2.1-U lot is 25, which means that the bidder can place this bid at a round price of DKK 25 mill. for a single 2.1-U lot. Thus, this headline bid does not imply a violation of the relative caps.

Round 4

Eligibility	Prices (DKK million)				Headline Bid	
	1.5-B	1.5-M	1.5-T	2.1-U	Package	Amount (DKK mill.)
490	25	25	25	25	four 1.5-M	100
12	25	30	25	25	1.5-B, 1.5-T	50
6	25	35	30	25	2.1-U	25
6	25	40	30	30	2.1-U	30

At the increased price of 2.1-U lots, the bidder cannot simply repeat its headline bid for the same package as this would violate the relative cap. However, the bidder will be able to make a headline bid for the 2.1-U lot if it makes an additional bid for the constraining package of DKK 55 mill., as this will also increase the relative cap on the 2.1-U lot by 5. Indeed, if the highest bid that the bidder makes for the constraining package is DKK 55 mill., then the relative cap on the package consisting of a single 2.1-U lot will be $55 - 25 = \text{DKK } 30 \text{ mill.}$ Thus, the bidder can submit a headline bid for the 2.1-U lot if it also submits an additional bid for the package 1.5-B, 1.5-T with a bid amount of at least DKK 55 mill.

However, we also need to check if the bidder can make an additional bid for the package 1.5-B, 1.5-T with a bid amount of DKK 55 mill.:

- The first activity rules constraint on additional bids is that the bid amount of the additional bid cannot exceed the round price of the package. The round price of the package is DKK 55 mill., which is the same as the bid amount for the intended additional bid (DKK 55 mill.), and thus the first constraint is satisfied.
- The second activity rules constraint on additional bids only applies if the bid package of the additional bid has eligibility that exceeds the bidder's eligibility in the round. The eligibility of package 1.5-B, 1.5-T is 6 points, which does not exceed the bidder's eligibility in the round, and thus this constraint does not apply.

Given this, the bidder can make a headline bid for the 2.1-U lot, provided that it also makes an additional bid for package 1.5-B, 1.5-T with an amount of at least DKK 55 mill., which is just feasible. Note, however, that the bidder could not maintain its headline bid on 2.1-U if the price of those lots increased and the price of 1.5-B and 1.5-T lots remained unchanged, as this would not allow the bidder to submit the required additional bid.

Now suppose that the bidder also considers submitting an additional bid of DKK120 mill. for the package of four 1.5-M lots (for which it had made a headline bid in the first round). To check if this additional bid is allowed by the activity rules:

- the first activity rules constraint requires that the bid amount cannot exceed the round price of the bid package – the round price of the package of four 1.5-M lots is DKK 160, which is greater than the bid amount for the intended additional bid (DKK 120 mill.), and thus the first constraint is satisfied;
- the second activity rules constraint would now apply, as the eligibility of the package of four 1.5-M lots is 12 points. This exceeds the bidder's eligibility in the round (which is 6 points). To submit the bid, it is therefore necessary that the bid does not involve a violation of the relative caps.

To check if the relative cap on the package of four 1.5-M lots is satisfied, we identify:

- the constraining bid (which is the headline bid for package 1.5-B, 1.5-T in the second round);
- the highest bid for the bid package of the constraining bid (which is at least DKK 50 mill., as the bidder made this bid in the second round, and could be higher if the bidder were to submit an additional bid for this package in the round); and
- the difference between the round price of four 1.5-M lots and package 1.5-B, 1.5-T in the second round (DKK 70 mill.).

Therefore, the bidder would be able to submit an additional bid of DKK 120 mill. for the package of four 1.5-M lots even if it did not submit any additional bids for package 1.5-B, 1.5-T.

If the bidder wanted to make a bid for four 1.5-M lots above DKK 120 mill., it would have to increase the amount of the bid on the constraining package by placing an additional bid. For example, if an additional bid for 1.5-B, 1.5-T were placed at an amount of DKK 55 mill., the bidder could make a bid for four 1.5-M lots at DKK 125 mill.

However, this is the maximum amount to which these bids can be raised. If the bidder wanted to make a bid for four 1.5-M lots with a bid amount of more than DKK 125 mill., then it would also need to make an additional bid for package 1.5-B, 1.5-T in excess of DKK 55 mill., but that is not possible under the round price constraint on additional bids.

Managing relative caps and activity rules

The AS will check compliance with the activity rules and all relative caps, identifying any violations of the relative cap rule and providing bidders with information that will help them to remedy such violations.

12.4.6 Evaluation of bids and closing of the phase

After each round, the Danish Energy Agency will evaluate bids in order to determine whether the phase can close or whether a further round is required. If a further round is required, the Agency will also determine for which lot categories round prices need to increase.

Evaluation of bids

A feasible bid combination is a combination of bids which includes at most one bid (which may be a headline bid or an additional bid) from each bidder, and where the demand expressed in these bids can be met with the lots available in that phase.

The assignment that corresponds to a feasible combination involves:

- assigning to each bidder who has a bid included in the feasible combination only the lots included in this package; and
- not assigning any lots to bidders who do not have a bid included in the feasible combination.

The value of a feasible bid combination is the sum of amounts of the bids included in the combination plus the sum of reserve prices of any lots that would remain unassigned if the feasible combination is selected as the winning combination.

A feasible bid combination is value-maximising if it achieves the highest value across all feasible combinations.

A feasible bid combination is inclusive if it includes exactly one bid from each bidder (such bid may be a zero bid for bidders who have submitted a zero bid, or have stopped making headline bids).

If none of the value-maximising feasible combinations is inclusive, then a further round of bidding is required. Otherwise, if at least one value-maximising feasible combination is inclusive, then the phase ends.

Price increments

If a further bidding round is required, then the round prices for some (or all) lot categories need to increase.

The rationale for increasing prices is that if there is a conflict between the demand from different bidders, then it is necessary to establish whether the bidders in question are willing to raise their bids, switch or reduce their demand in the following round.

Therefore, the first step to determine the lots that require a price increment is to identify which bidders are outbid in at least one value-maximising feasible bid combination that does not simply leave the lots that the bidder had included in a bid at the reserve price unassigned. We call these the 'omitted' bidders. Each of these bidders should face a price increase for the package they bid for in the most recent round.

It is possible that competition between omitted bidders may focus on some specific lot categories. Therefore, it may not be necessary to increase the price for all lots included in the headline bid package of omitted bidders.

To identify the individual lot categories in which there is a demand conflict, we isolate, in turn, the omitted bidder's demand for individual categories included in its headline bid, and we assess whether the bidder's demand for that lot category is in conflict with that of other bidders. For each of the omitted bidders the following process is applied:

- Taking the headline bid from the bidder in the most recent round, we look at the lot categories for which the number of lots in the package is greater than zero.
- Taking each of these categories in turn, we construct a hypothetical bid for a package that includes only the lots in the category under consideration included in the headline bid and nothing else (with the price adjusted accordingly).
- We then re-evaluate the bids, replacing the headline bid from the omitted bidder with this hypothetical bid. If the bidder would still be an omitted bidder with this hypothetical bid, then we increase the price of this lot category.
- If none of these lot categories required a price increment when considered individually, then we increase the price of all the lot categories included in the headline bid.

The Danish Energy Agency will determine the level of price increments with a view to supporting price discovery and promoting an efficient auction outcome.

Example 6: Evaluation of bids

Consider a simplified scenario in which eight 1.5-M lots, six 2.1-U lots, two 2.3-U lots, one 3.5-P lot and eight 3.5-U lots are available. Suppose that at a given point round prices are:

Round Price (DKK million)	1.5-M	2.1-U	2.3-U	3.5-P	3.5-U
	35	25	110	25	110

Assume that at the end of that round we have the following bids:

Package

Bidder	Bid type	1.5-M	2.1-U	2.3-U	3.5-P	3.5-U	Bid amount (DKK mill.)
Bidder 1	Headline bid	4			1	3	495
Bidder 1	Additional	4		2	1		385
Bidder 1	Additional	4		2	1	3	715
Bidder 2	Headline bid	5				3	505
Bidder 2	Additional	5		2		1	505
Bidder 2	Additional	1			1	2	280
Bidder 3	Headline bid			2		3	550

In order to establish the feasible bid combinations we need to find combinations that include at most one bid from each bidder and check if the demand in these bids can be met. For instance:

- a combination of the headline bids from each bidder is not feasible, as total demand for 1.5-M lots is nine, which exceeds the available supply, as does total demand for 3.5-U lots (nine compared with a supply of eight lots);
- a combination including the headline bids from bidder 1 and bidder 2 is also infeasible as the total demand for 1.5-M lots is nine and thus in excess of supply.

There are many more combinations that are not feasible, but these are not relevant to how the bids are evaluated. Focusing on feasible combinations, these include:

- a combination including the headline bids from bidder 1 and bidder 3;
- a combination including the headline bids from bidder 2 and bidder 3; or
- all combinations which include only a bid from one of the bidders.

We then calculate the value of feasible combinations. For example:

- the value of the combination including the headline bids from bidder 1 and bidder 3 is DKK 1,285 million (495 from bidder 1's headline bid, 550 from bidder 3's headline bid, and 240 from the reserve price of lots that remain unassigned);
- the value of the combination including the headline bids from bidder 2 and bidder 3 is DKK 1,310 million (505 from bidder 2's headline bid, 550 from bidder 3's headline bid, and 255 from the reserve price of lots that remain unassigned); and
- the value of a combination including only the second additional bid from bidder 1 is DKK 1,030 million (715 from bidder 1's additional bid and 315 from the reserve price for lots that remain unassigned).

We then take the highest value across all feasible bid combinations; in this specific case, there is a unique value-maximising combination, namely the one including the headline bids from bidder 2 and bidder 3. This combination is not inclusive, as it does not include a bid from bidder 1. Therefore, a further round is needed. Given that a further round is needed, we need to determine which lot categories should have their round price increased.

To do so, we first identify the omitted bidders. In this example, where there is only one unique value-maximising bid combination, it is easy to identify bidder 1 as the only omitted bidder, but if we had several value-maximising combinations we would need to identify the bidders who are omitted in at least one of these combinations (excluding those bid combinations where the omitted bidders have placed bid that could be accommodated using lots that might otherwise be unassigned). By contrast, a bidder would not be omitted if it has a bid included in each and every one of the value-maximising combinations (again excluding those bid combinations where there are ties with leaving some lots unassigned).

Taking the headline bid of the omitted bidder, we consider the lot categories for which the number of lots in the bid package is positive:

- We start with 3.5-U lots. We construct a hypothetical headline bid for the omitted bidder which only includes the three 3.5-U lots included in its actual headline bid. The amount of this hypothetical bid would be DKK 330 million. We replace the bidders' actual headline bid with this hypothetical bid and check again for the value-maximising feasible combinations. In this hypothetical scenario it would be feasible to accept bidder 1's hypothetical headline bid alongside bidder 2's actual headline bid, or alongside bidder 3's actual headline bid. However, the value of these combinations would be DKK 1,190 million and DKK 1,185 million, respectively, which is still lower than the value achieved by the combination including the headline bids from bidder 2 and bidder 3. The feasible combinations of bidder 1's hypothetical bid and either of bidder 2's additional bids also have lower values than achieved by the combination of the headline bids from bidder 2 and bidder 3. Therefore, bidder 1 would continue to be omitted with this hypothetical headline bid, and thus we conclude that the price for 3.5-U lots must increase.

- We now check the 3.5-P lot. The hypothetical headline bid would now only include only the 3.5-P lot and would have a bid amount of DKK 25 million. In this hypothetical scenario it would be feasible to accept bidder 1's hypothetical headline bid alongside the actual headline bids from bidder 2 and bidder 3. The value of this combination would be DKK 1,310 million, which creates the highest possible value across all combinations. Furthermore, the only other combination that achieves this highest value leaves lot 3.5-P unsold, i.e. is one where a bid is tied with leaving the corresponding lots unassigned. Therefore, bidder 1 would cease to be omitted with this hypothetical headline bid. So, on the basis of this check there is no need to increase the price for the 3.5-P lot.
- Finally, we check the 1.5-M lots. The hypothetical headline bid would now only include four 1.5-M lots and would have a bid amount of DKK 140 million. In this hypothetical scenario it would be feasible to accept bidder 1's hypothetical headline bid alongside bidder 2's second additional bid and alongside bidder 3's actual headline bid. However, the value of this combination would be DKK 1,225 million, which still falls short of the maximum of DKK 1,310 million achieved with the headline bids from bidder 2 and bidder 3. Therefore, bidder 1 would continue to be omitted with this hypothetical headline bid, and thus we conclude that the price for 1.5-M lots must increase.
- Given that when considering lot categories individually we have identified two lot categories which require a price increment, we stop here for this omitted bidder.

As there are no more omitted bidders, we stop the process for identification of lot categories which require a price increment and increase only the round prices for 3.5-U lots and 1.5-M lots.

End of the phase

At the end of phase, one of the inclusive, value-maximising feasible combinations will become the winning combination. In case of a tie, the following criteria are applied to determine the winning bid combination:

- if there are several combinations which meet the criteria above, only those which maximise the number of 2.1-D lots assigned (if any are included in the phase) will be considered;
- if there are several combinations which meet the criteria above, the combinations that maximise the sum of eligibility points for the lots assigned are selected;
- if there are several combinations which meet the criteria above, the combinations that maximise the number of bidders that win spectrum in the auction are selected;
- if several further combinations remain, one of these will be randomly selected by the auction system.

Then:

- non-zero bids included in the winning combination will become the winning bids of the phase;
- the bidders who have submitted these bids will become the winners of the phase; and
- the phase price to be included in the total licence price for each winner will be the bid amount of its winning bid (and the phase price for bidders who are not winners will be zero).

Information disclosed to bidders with round results

If a further round is required, the Danish Energy Agency will inform each bidder of the following:

- the lot categories that will have their price incremented for the following round;

- whether the bidder was identified as an ‘omitted bidder’ when establishing the need for applying price increments;
- whether the bidder’s headline bid was included in any of the value-maximising feasible combinations;
- the bidder’s eligibility for the following round; and
- the number of extension rights still available for the bidder.

If no further round is required, the Danish Energy Agency will inform each bidder of the lots assigned to it, the price it must pay and, if required, a provisional schedule for the bidding round of the next phase. There will be at least one clear business day between the announcement of the results of the phase and the bidding round of the next phase.

No information will be released about the lots assigned to other bidders, their phase prices, or the individual bids submitted by other bidders.

12.5 The main spectrum assignment phase (third phase)

The main spectrum assignment phase (third phase) uses a Combinatorial Multiple Round Ascending (CMRA) auction with the rules as set out in Section 12.4.

12.5.1 Lots available

The lots available in the main spectrum assignment phase are:

- lot 1.5-B;
- eight 1.5-M lots;
- lot 1.5-T;
- six 2.1-U lots;
- any 2.1-D lots that have not been assigned in the first phase;
- two 2.3-U lots;
- lot 3.5-P, provided that at least one 3.5-D lot has been assigned in the first phase;* and
- eight, 16 or 24 3.5-U lots, depending on whether none, one or two 3.5-D lots have remained unassigned, provided that at least one 3.5 D-lot has been assigned.*

** Note that these lots only need to be included if there are bidders who are entitled to bid on them, which requires that they have placed bids on 3.5-D lots in the first phase. Also note that the number of lots may be larger than the number of lots that can be assigned under the spectrum caps if only some bidders can place bids on these lots.*

12.5.2 Eligibility points

Eligibility points per lot

The eligibility points associated with each lot in the various categories possibly included in the main spectrum assignment phase are as follows:

Table 3: Spectrum lots and eligibility points for the main spectrum assignment phase

Lot category	Lot bandwidth	Eligibility points per lot
1.5-B	25 MHz	5
1.5-M	5 MHz	5
1.5-T	25 MHz	5
2.1-D	2x10 MHz	20
2.1-U	2x5 MHz	10
2.3-U	20 MHz	20
3.5-D*	80 MHz	80
3.5-P	60 MHz	60
3.5-U	10 MHz	10

*3.5-D-lots are not available in the main spectrum assignment phase, however the eligibility points are included in the initial eligibility, which is why the lot category is mentioned here.

Bidder initial eligibility

Bidders' initial eligibility for the main spectrum assignment phase is set to 490 points.

12.6 26 GHz assignment phase (fourth phase)

The 26 GHz assignment phase uses a Combinatorial Multiple Round Ascending (CMRA) auction with the rules detailed in Section 12.4.

12.6.1 Lots available

In the fourth phase, eight, 10, 12 or 14 26-U lots are available, depending on whether none, one, two or three 3.5-D lots have remained unassigned.

12.6.2 Eligibility points

Eligibility points per lot

Each lot has one eligibility point.

Bidder initial eligibility

Bidders' initial eligibility for the 26 GHz assignment phase is set to 14 points.

12.7 Specific frequencies assignment phase (fifth phase)

12.7.1 Overview

This phase determines the specific frequencies that will be assigned to winners of spectrum. As a result, only winners of the preceding phases may participate in this phase. We call such bidders 'participants'.

Bids are submitted simultaneously for the potential assignments in all bands but evaluated separately for each band using a combinatorial second-price sealed bid format.

The Danish Energy Agency will, for each band, establish the possible placement options that are consistent with the assignment of spectrum in the preceding phases and with the requirement that each participant will be assigned all its spectrum as a contiguous frequency range, where possible. The individual placements for a particular participant in a particular band are the different placements that the participant could have across all possible placement options for that band.

Participants will then be able to place bids for each individual placement in each band that is available to them and winners and prices will be determined as set out in section 12.7.5.

12.7.2 Determination of placement options and individual placements

The individual placements that are available to each bidder in the bands concerned are the frequency ranges that the bidder would be assigned in at least one of the placement options.

1500 MHz band

The placement options for the 1500 MHz band are an assignment of frequencies in which:

- each participant who has been assigned 1.5-M lots is assigned a contiguous frequency range in the core 1500 MHz band with the bandwidth that corresponds to the 1.5-M lots it has been assigned;
- the frequencies assigned to different participants do not overlap;
- if one participant has won the 1.5-B lot and some 1.5-M lots, but not the 1.5-T lot, then its frequencies in the core band are contiguous with the 1.5-B lot (so there is only one possible individual placement for this participant);
- if one participant has won the 1.5-T lot and some 1.5-M lots, but not the 1.5-B lot, then its frequencies in the core band are contiguous with the 1.5-T lot (so there is only one possible individual placement for this participant);
- if one participant has won both the 1.5-B and 1.5-T lots and some 1.5-M lots, then its frequencies in the core band are contiguous with either the 1.5-B lot or the 1.5-T lot (so there are two possible individual placements for this participant);
- if both 1.5-B lot and 1.5-T lot remain unsold, then any frequencies that remain unassigned form at most two contiguous frequency ranges, and any frequencies unassigned in the core band are contiguous; and

- if at most one of 1.5-B lot and 1.5-T lot remain unsold, then any frequencies that remain unassigned form a contiguous frequency range.

2.1 GHz band

The placement options for the 2.1 GHz band are an assignment of frequencies in which:

- each participant who has been assigned lots in this band is assigned a contiguous frequency range with the bandwidth that corresponds to the lots it has been assigned in this band;
- the frequencies assigned to different participants do not overlap; and
- any frequencies that remain unassigned form a contiguous frequency range.

2.3 GHz band

The placement options for the 2.3 GHz band are determined by the requirement that in the event that TDC acquires a single 2.3-U lot this will be contiguous with TDC's current holdings in the band.

3.5 GHz band

If a participant is assigned the frequencies 3420-3430 MHz and the total bandwidth it has been assigned in the 3.5 GHz band is less than 160 MHz, then this participant will also be assigned the block 3410-3420 MHz, which is subject to usage restrictions (as specified in section 5.5.1).

The placement options for the 3.5 GHz band are an assignment of frequencies in which:

- each participant who has been assigned lots in this band is assigned a frequency range that is contiguous and with the bandwidth that corresponds to the lots it has been assigned in this band;
- the frequencies assigned to different participants do not overlap;
- if a participant has been assigned the 3.5-P lot in this band, then its frequencies are at the top of the band;
- any frequencies that remain unassigned in the range 3420-3800 MHz form a contiguous frequency range; and
- a participant who has been assigned a total of 160 MHz in the previous phases and not including the 3.5-P lot can only be placed at the bottom of the 3.5 GHz band if it is not possible to place the bidders elsewhere in the band.²³

26 GHz band

If a participant is assigned the frequencies 24.7-24.9 GHz, then this participant will also be assigned the block 24.65-24.7 MHz, which is subject to usage restrictions (as specified in section 6.3.4).

²³ This is to allow, where possible, for the assignment of the additional 10 MHz at the bottom of the band (the 3410-3420 MHz block) without violating the spectrum cap. Note it is not possible for a participant to be assigned more than 160 MHz in the 3.5 GHz band regardless of placement in the band.

The placement options for the 26 GHz band are an assignment of frequencies in which:

- each participant who has been assigned lots in this band is assigned a frequency range that is contiguous and with the bandwidth that corresponds to the lots it has been assigned in this band;
- the frequencies assigned to different participants do not overlap; and
- any frequencies that remain unassigned form a contiguous frequency range.

Eksempel 7: Fastlæggelse af placeringsmuligheder og individuelle placeringer

Example 7 a)

Consider the 2100 MHz band. Suppose that three bidders have been assigned spectrum in this band. Bidder 1 has been assigned the 2.1-D1 lot and three 2.1-U lots (so it must be assigned a contiguous block of 2x25 MHz). Bidder 2 has been assigned the 2.1-D2 lot and three 2.1-U lots (so it must also be assigned a contiguous block of 2x25 MHz), and bidder 3 has been assigned the 2.1-D3 lot (a contiguous block of 2x10 MHz).

Graphically, the different placement options can be illustrated as follows:

Given the placement options, bidder1 and bidder 2 have the same individual placement available:

- 1920-1945 MHz paired with 2110-2135 MHz;
- 1930-1955 MHz paired with 2120-2145 MHz;
- 1945-1970 MHz paired with 2135-2160 MHz; or
- 1955-1980 MHz paired with 2145-2170 MHz.

Bidder 3 has the following individual placement available:

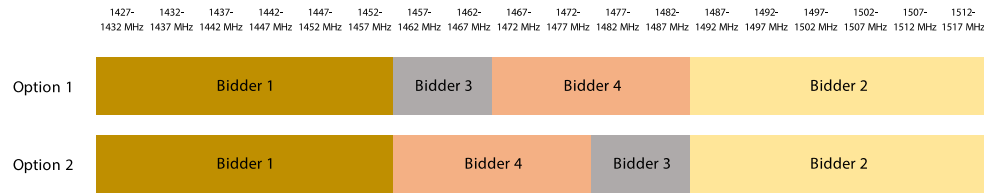
- 1920-1930 MHz paired with 2110-2120 MHz;
- 1945-1955 MHz paired with 2135-2145 MHz; or
- 1970-1980 MHz paired with 2160-2170 MHz.

Example 7 b)

Consider the core 1500 MHz band. Suppose that four bidders have been assigned spectrum in this band. Bidder 1 has been assigned one of the 1.5-M lots in addition to the 1.5-B lot (so it must be assigned a contiguous block of 30 MHz at the beginning of the band), while bidder 2 has been assigned the 1.5-T lot and one 1.5-M lot (so it must be assigned a contiguous

block of 30 MHz at the end of the band). Bidder 3 has been assigned two 1.5-M lots (10 MHz) and bidder 4 has been assigned the remaining four 1.5-M lots (20 MHz).

Graphically, the different placement options can be illustrated as follows:



The placement for bidders 1 and 2 are set. Given the placement options, bidder 3 has these individual placements available:

- a) 1457 MHz-1467 MHz, or
- b) 1477 MHz-1487 MHz

Bidder 4 has the following individual placements available:

- c) 1457 MHz -1477 MHz, or
- d) 1467 MHz -1487 MHz

12.7.3 Bids

An assignment bid is a price offer for the individual placement for which it is made and indicates the maximum price that the bidder would be prepared to pay for being assigned that placement rather than any other placement in the band. Assignment bids allow participants to express specific preferences regarding their individual placements. If a participant does not specify an assignment bid for a specific placement, it is deemed to have made a bid of zero DKK.

Bids must not be negative and must be expressed in whole DKK thousands.

Bids are mutually exclusive within each band.

12.7.4 Scheduling the bidding round for the specific frequencies assignment phase

If any of the participants has alternative individual placements available in any of the bands, then a bidding round will be required. In this case, the Danish Energy Agency will set the schedule for the round. The round will not start earlier than one full business day after the announcement of results of the 26 GHz assignment phase. The Danish Energy Agency anticipates that the round will last for at least one hour and take place between 10.00 and 16.00 hours on a single business day.

12.7.5 Submission of bids

The bid form will provide an input box for each placement where the bidder can enter its bid for the respective placement. If the bidder does not enter a bid for a lot, a default bid of DKK zero will apply for that placement.

12.7.6 Evaluation of bids

Bids will be evaluated separately for each frequency band, where only the placement options for the relevant band are considered.

The value of a placement option is calculated as the sum of assignment bids for its individual placements.

The value of each placement option is then calculated as the sum of bids made by participants for the individual placements they would get in this option.

For each band, the winning placement option is the placement option with the highest overall value (with ties being broken at random).

The frequency assignment price for each participant in a given band is the price the participant will be required to pay for the individual placements it is assigned.

The prices for the individual placements are calculated separately for each frequency band following an opportunity cost-based pricing rule. The participant's overall assignment price is equal to the sum of the participant's assignment prices for the different frequency bands.

The assignment opportunity cost for a subset of participants for a given band is the difference between:

- the greatest sum of assignment bids from other participants that could be achieved in any of the placement options; and
- the sum of winning bids from other participants.

The assignment prices for the frequency band are defined by applying the following conditions:

- the sum of assignment prices for each proper subset of participants²⁴ cannot exceed the sum of their winning bids;
- the sum of assignment prices for each proper subset of participants²⁵ must be at least the assignment opportunity cost for the subset;
- the sum of band assignment prices must be the smallest possible subject to the band assignment prices satisfying the conditions above; and
- the sum of the squared differences between each participant's band assignment price and its assignment opportunity cost²⁶ must be the smallest possible across all alternative band assignment prices that satisfy the conditions above.

These conditions yield a unique set of assignment prices for the frequency band in question.

²⁴ A proper subset of participants include all possible subsets of participants, apart from the subset in which all participants are included.

²⁵ As above.

²⁶ I.e. the opportunity cost of the assignment for the subset that only contains the participant in question.

Example 7: Evaluation of bids in the third auction stage

Following from Example 7a (see page 93), suppose that the bidders make the following assignment bids:

- Bidder 1 bids DKK 1 million for a), DKK 0.6 million for b) and DKK 0.2 million for c)
- Bidder 2 bids DKK 1.2 million for a):
- Bidder 3 submits no bid for placements

On the basis of these bid the value of each of the placement options can be calculated:

Placement options	Bidder 1		Bidder 2		Bidder 3		Value
	Individual placement	Bid	Individual placement	Bid	Individual placement	Bid	
Option 1	a	DKK 1m	c	DKK 0	g	DKK 0	DKK 1 m
Option 2	a	DKK 1	d	DKK 0	f	DKK 0	DKK 1 m
Option 3	c	DKK 0.2 m	a	DKK 1.2 m	g	DKK 0	DKK 1.4 m
Option 4	d	DKK 0	a	DKK 1.2 m	f	DKK 0	DKK 1.2m
Option 5	b	DKK 0.6 m	d	DKK 0	e	DKK 0	DKK 0.6 m
Option 6	d	DKK 0	b	DKK 0	e	DKK 0	DKK 0

Option 3 has the highest value and will be the final placement combination.

The assignment opportunity costs are calculated as follows:

Bidder	The greatest sum of assignment bids from other bidders that could be achieved among the placement options	Sum of winning bids from other winners	Opportunity cost of assignment
Bidder 1	DKK 1.2 million	DKK 1.2 million	DKK 0
Bidder 2	DKK 1 million	DKK 0.2 million	DKK 0.8 million
Bidder 3	DKK 1.4 million	DKK 1.4 million	DKK 0

The assignment prices must satisfy the following conditions:

- The price for each bidder cannot exceed the bidder's winning bid (therefore, the price cannot exceed DKK 0.2 million for bidder 1 and DKK 1.2 million for bidder 2), and the sum of prices for both bidders cannot exceed the sum of their bids (so the price cannot exceed DKK 1.4 million).
- The price for each bidder shall be at least the opportunity cost of the assignment (therefore, the price for bidder 1 shall be at least DKK 0 and the price for bidder 2 at least DKK 0.8 million).
- The total sum of prices shall as small as possible.
- The sum of the squared differences between each bidder's band assignment price and its assignment opportunity cost must be the smallest possible across all the assignment prices that satisfy the conditions above.

The only subset of assignment prices satisfying the first three conditions is the assignment prices that are equal to each bidder's assignment opportunity cost. As there is a unique number of assignment prices equal to each bidder's assignment opportunity cost, the fourth condition is satisfied automatically. The band assignment price for bidder 1 is therefore DKK 0, the assignment price for bidder 2 is DKK 0.8 million, and the assignment price for bidder 3 is DKK 0.

Information disclosed to participants with round results

At the end of the fourth auction phase, the Danish Energy Agency will notify each participant of:

- the specific frequencies that the participant will be assigned in each frequency band; and
- the assignment prices for each frequency band.

12.8 Information disclosed at the end of the auction

At the end of the auction, the Danish Energy Agency will inform all bidders in the AS about:

- the specific frequency ranges assigned to each of the bidders in each of the bands;
- the assignment of the different coverage obligations linked to the 2.1-D lots to the individual winners;
- the round price for a frequency block of 10 MHz in the 3.5 GHz frequency band without coverage obligation or leasing obligation in the last round of the main spectrum assignment phase in the auction for calculation of leasing of frequencies in relation to the leasing obligation, cf. annex M to the Information Memorandum; and
- the total amount payable by each of the bidders.

12.9 Ekstraordinære forhold under auktionen

Whether exceptional circumstances exist during the auction is determined by the Danish Energy Agency. Exceptional circumstances could include, for example, widespread technical failure or concern about possible collusion among bidders.

If exceptional circumstances arise during the auction, the Danish Energy Agency has the discretion to:

- postpone the scheduled end time for a bidding round in progress;
- cancel a bidding round which has not yet started;
- postpone the scheduling of further bidding rounds;
- cancel a bidding round that is either underway or for which round results have not yet been released, and re-schedule the round again;
- void all bids received in the respective auction stage or restart the auction stage or auction; and/or
- cancel the auction.

The exclusion of a bidder from the auction will not provide a basis for the Danish Energy Agency to change the method of determining winning bids and prices.

13 Granting of Licences

At the Grant Stage, winning bidders are granted licences for the frequencies assigned to them in the auction or as part of the qualification stage if there is only one bidder. Licences are only granted once bidders have fulfilled the payment terms.

It should be noted that while all communication between bidders and the Danish Energy Agency before the auction is effected via the digital tendering system (Digitale Udbud) and during the auction via the auction system (AS) (messages from the Danish Energy Agency to bidders) and the tendering system (from bidders to the Danish Energy Agency as bidders cannot send messages direct to the Danish Energy Agency in the AS), then all communication, including submission of guarantees for payment of instalments on the licence price, shall be effected via communication by e-mail and fax post etc. (guarantees). This means that communication via the digital tendering system will not be used after the end of the auction.

13.1 Payment of Licence price

13.1.1 Payment schedule

For each winning bidder, a specific licence price is determined, to be paid for the licence or licences won by the bidder in question. The licence price will be the sum of the prices established after completion of all five auction phases.

The bidder has to decide how to pay the licence price. The bidder has the following options:

1. An initial payment comprising 10 % of the licence price which shall be paid before the licence is issued and a deferred payment comprising 90 % of the licence price which shall be paid in nine equal annual instalments, with the first instalment due on the date falling one year from issue of the licence, but not until 2024 if the licensee has to meet a coverage obligation and prefers this, cf. clause 67 of the Danish Energy Agency's Decision; or
2. payment of the licence price in full.

Following the announcement of the auction result, the Danish Energy Agency will notify winning bidders via e-mail of their schedule of payments, including a date by which their payment of the licence price in full or initial payment shall be paid into the bank account of the Danish Energy Agency.

Any penalties incurred during the auction must be paid in full at the same time as the payment of the licence price in full or the initial payment is made. The licence price in full or the initial payment must be paid into the Danish Energy Agency's bank account within the time stipulated. This will be at most 10 working days after notification by the Danish Energy Agency. However, the Danish Energy Agency may, at its sole discretion, extend the time limit in order for the winning bidder to fulfil these obligations. Interest will accrue on the amount outstanding in relation to the licence price from the due date until payment has been effected, at a rate of interest determined by the Interest Act.

Details of the Danish Energy Agency's bank account are as follows:

Bank: Danske Bank
Registration number: 0216

Account name: Danish Energy Agency
Account number: 4069071767
Swift number: DABADKKK
IBAN number: DK3102164069071767

13.1.2 Demand guarantee for the Deferred Payment

Winning bidders are required to provide a demand guarantee for deferred payments within the time stipulated if they have chosen only to pay an upfront fee of 10 % of the licence price. This will be at most 10 working days after notification by the Danish Energy Agency. The guarantee must be provided in the form set out in Annex I of this Memorandum. In particular, the guarantee must be:

- Payable on demand to the Danish Government as represented by the Danish Energy Agency;
- issued by a bank or an insurance company which does not control the bidder, nor is controlled by the bidder nor is controlled by a person who controls the bidder, and which is registered in the European Economic Area and has, as a minimum, a long-term debt A rating from Standard & Poors or Fitch Rating of at least A, or from Moody's Investors Service Limited of at least A2; and
- for an amount equivalent to the sum of three annual instalments payable on the licence price, cf. section 67 in the Danish Energy Agency's Decision, however in such a manner that the guarantee shall be reduced by the instalments that are paid over the last three years of the repayment period. The guarantee shall be effective from the date of issue of the licence and shall at any time be effective in the period when the following three instalments fall due for payment.

The guarantee shall be signed by one or more persons who are empowered to sign for, or are otherwise authorised to bind the issuing bank or insurance company, and also in conformity with the rules and practice for issuing guarantees applicable to the relevant bank or insurance company. Documentation for empowerment to sign or authorisation shall be appended.

In case the guarantee is signed by physical signatures, documentation certifying the authenticity of the signatures shall be appended (for example by two persons other than those empowered to sign stating that the signature is authentic, by signing their name, address and position) unless digital signatures have been used at the time of signing.

The guarantee shall be supplemented with a declaration signed by one or more persons who are empowered to sign for the bidder or otherwise authorised to bind the bidder, cf. section 11.1.3 under "application form" about information and documentation for these persons.

For the use of issuing of licences, winning bidders may submit a demand guarantee containing the necessary signatures without all signatures being original, i.e. the signatures may be scanned etc. In case a winning bidder has chosen this solution, the

winning bidder shall subsequently, as soon as possible, submit a guarantee with signatures that are all original.

A licensee is required to notify the Danish Energy Agency via e-mail without undue delay in the event that the guarantor's credit rating falls below the required level. The licensee will then have two months in which to provide a new guarantee. If the licensee fails to put in place a new guarantee within this period, the Danish Energy Agency may revoke the licence in accordance with clause 89 in the Danish Energy Agency's Decision.

Writedown of demand guarantee

When only one or two years' instalments are outstanding, the Danish Energy Agency may not assert a claim under the demand guarantee higher than the remaining instalments, always provided that instalments due have been paid. The guarantee is to ensure payment of three years' instalments if these are not paid by the licensee.

The general observation on writedown of the guarantee in accordance with clause 67 in the Danish Energy Agency's Decision has no significance as to whether the liability has in reality been reduced to the lower amount. Thus, it is not necessary that the Danish Energy Agency should receive a new demand guarantee to replace the previous demand guarantee in order to have the amount of the guarantee reduced.

A possible alternative solution to issuing a new demand guarantee may be for the guarantee to be endorsed by the Danish Energy Agency confirming that the instalment has been paid, and that the guarantee has therefore been written down to one, or two, years' instalments. Such endorsement may run as follows:

"The Danish Energy Agency hereby confirms that the amount of the guarantee, effective [date], has been written down to an amount of DKK [...], i.e. [] [insert an amount equal at least to the sum of two annual instalments/one instalment on the final licence price]."

13.2 Costs of preparation and implementing the Auction

As stated in clause 75 in the Danish Energy Agency's Decision, the Danish Energy Agency shall charge a fee to bidders to whom licences have been issued, to cover the costs involved in the Danish Energy Agency's preparations and implementation of the auction.

The exact amount cannot be determined until the auction is finished. However, the current estimate is that the total cost will be about DKK 10 million.

The costs will be allocated proportionally among winning bidders based on the amount of spectrum won by the individual bidders in the auction seen in relation to the share of the total amount of spectrum assigned.

This means that the Danish Energy Agency, notwithstanding the result of the auction, may have all its costs covered in connection with the preparation, implementation and

issue of licences to the winners in the auction, i.e. also in case there might be unsold frequencies in the auction.

The Danish Energy Agency will set the due date in respect of this payment following the auction. If the licensee does not pay this fee, the Danish Energy Agency may revoke the licence as specified in clause 88 in the Danish Energy Agency's Decision, cf. Annex B, subject to the principle of proportionality.

13.3 Payment in case of default and return of the Licence

If a winning bidder fails to make a payment of the licence price or a part of the licence price on the due date, or any other amounts due, interest will be charged from that date onwards on the amount outstanding, in accordance with the Act on Interest.

Failure to pay instalments or other amounts due could result in revocation of the licence, cf. clause 88 in the Danish Energy Agency's Decision. If a licence is revoked by the Danish Energy Agency, the licensee shall be under an obligation to pay on demand an amount equivalent to 30 % of the licence price, or, if payment of a smaller amount of the licence price is outstanding, then such smaller amount (see also section 10.4.5).

A licensee may at any time return a licence. Upon return of its licence to the Danish Energy Agency, the licensee may terminate future rights and obligations not yet due by paying not later than the date of return an amount equivalent to 30 % of the licence price, or, if payment of a smaller amount of the licence is outstanding, then such smaller amount.

If licences are revoked or returned, the licence price paid or other amounts paid in connection with the auction will not be refunded, and the obligation to pay any instalments due and interest thereon will still exist. If licences are revoked or returned during a calendar year for which the annual spectrum fee has been paid, a corresponding proportionate refund will be offered for the frequency charge.

13.4 Issue of licences

Once the payment of the licence price in full or the initial payment and the demand guarantee have been received by the Danish Energy Agency, the licences will be granted to the winning bidders. This will be in the form similar to the draft licences shown in Annexes C to G.

13.5 Announcement of results

Upon conclusion of the Grant Stage, the Danish Energy Agency may make a public announcement comprising:

- the number of bidders that participated in the auction;
- the identity of the winning bidders;
- the frequencies assigned to each of the winning bidders;

- The round price for a frequency block of 10 MHz in the 3.5 GHz frequency band without coverage obligation or leasing obligation in the last round of the main spectrum assignment phase in the auction for calculation of leasing of frequencies in relation to the leasing obligation, cf. annex M to the Information Memorandum; and
- the licence price to be paid by each winning bidder.

The Danish Energy Agency also has discretion to publish full details of the bids submitted in the auction, including the identity of all bidders and the bids they submitted. The Danish Energy Agency will decide when and if it intends to publish this information following the conclusion of the Grant Stage.

It should be noted that the rules of the Public Administration Act and the Open Administration Act on access to documents will be applicable to information and documents submitted in connection with the auction.

14 Communication

Section 14 contains information about communication between the Danish Energy Agency and bidders before and during the auction, and procedures for exceptional circumstances.

14.1 Publication of information

The Danish Energy Agency will publish all necessary documents and updates on the auction on its website: www.ens.dk and in the digital tendering system. Documents and updates will always be available in Danish. After publication of the final auction documents, an English version will be available at: <http://ens.dk/en> and in the digital tendering system, see below under section 14.2 and sections 11.1.5 and 11.2.3.

In the event of discrepancies between the Danish and English versions of the information published on the Danish Energy Agency's website and in the digital tendering system, the Danish version shall prevail.

14.2 Process for enquiries before the start of the auction process

Questions concerning the Information Memorandum and the auction process should be addressed to the Danish Energy Agency in the digital tendering system. Communication should be made in writing and be sent via the tendering system, cf. section 11.1.2.

Questions should be submitted in an anonymised form in Danish with an English translation. The Danish Energy Agency's answers will be sent via the digital tendering system to all registered bidders.

All potential bidders are entitled to submit questions in the digital tendering system to the Danish Energy Agency in writing up to eight calendar days prior to the application date. The Danish Energy Agency will answer the questions in an anonymous version in Danish in the tendering system, which will be published in the digital tendering system as far as possible 48 hours before expiry of the deadline for applications. It is estimated that it may take up to five working days to answer certain questions. As far as possible, a non-binding English translation of questions and answers will be provided.

14.3 Communication during the auction process

Following the submission of applications through to the conclusion of the Grant Stage, bidders may ask questions and contact the Danish Energy Agency via the digital tendering system or by phone:

Phone number of auction telephone: +45 33 92 92 70

The Danish Energy Agency will endeavour to answer questions as soon as possible. The Danish Energy Agency will produce an anonymous version of all questions and answers, which will be published in the digital tendering system.

During all stages of the auction, the AS has a one-way messaging system that allows the Danish Energy Agency to send messages and notices out to bidders. Examples of notices that might be sent to bidders during the auction phase include:

- the timetable for forthcoming bidding rounds;
- price increments applicable in forthcoming bidding rounds; and
- the result of an auction stage at the end of this.

Note that to the extent possible, the timetable for the daily rounds will be announced one day in advance.

The Danish Energy Agency may use the AS, phone, digital tendering system or e-mail to send individual messages to bidders. Bidders cannot use the AS to contact the Danish Energy Agency. They must use phone or the digital tendering system as mentioned above.

14.4 Communication during exceptional circumstances

In the event of problems with the AS or other exceptional circumstances, bidders should contact the Danish Energy Agency using phone or the digital tendering system to discuss the problem. It should be noted that the Danish Energy Agency receives information from the tendering system when bidders have sent questions via the system.

In the event that the Danish Energy Agency decides to postpone or suspend the auction, or otherwise use its exceptional powers, the Danish Energy Agency will make all reasonable effort to notify bidders of its decision and update them on any changes to the auction status.